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Vegetable Situation

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THE VEGETABLE SITUATION

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SUMMARY

With the spring quarter well underway, the U.S. fresh *vegetable* industry is now returning to a more usual national supply pattern. Because the Florida freeze late last January destroyed large quantities of several tender vegetables—tomatoes, peppers, cucumbers, snap beans, and eggplant—the major market supplies available during much of February and March came from Mexico. During May, there will be generous supplies of several of these crops that were destroyed earlier. Some replanting of the earlier freeze-destroyed crops will tend to bunch harvest volume in the middle and later weeks of the spring period.

The prospective spring acreage of fresh market vegetables is 2 percent larger than a year earlier. With yields equal to the 1974-76 average, output would then be about the same as a year earlier. Among the major vegetables, there are larger acreages of snap beans, broccoli, cabbage, cucumbers and tomatoes, but smaller plantings of carrots, sweet corn, and lettuce. Not counted in these crops is the 40-percent reduction in the size of the Texas onion crop. Melon acreage is 7 percent larger.

The California drought situation is currently causing substantial concern about vegetable price trends this spring and summer. It now appears that fresh vegetable prices at farm and retail will remain higher than a year earlier this spring and summer, but will average substantially below March and April levels. Most vegetable plantings in California are in Salinas and the Central and South Coast areas where water supplies are expected to be adequate. An expanded appraisal of the California situation is covered in this issue's special article.

With disappearance of *canned vegetables* in 1976/77 probably only slightly less than a year earlier, a generally good balance between supplies and expected needs seems to be the situation. The use of *frozen vegetables* picked up in the same period, and this will leave the smallest frozen carryover in years this summer. With these possibilities in mind, growers and processors expect to plant 8 percent more vegetable crops to be frozen and 3 percent less to be used for canning. Prospec-

tive total acreage of 8 major processing vegetables is only fractionally smaller this year.

The April ERS wholesale price index of canned vegetables reached 174 (1967=100); regaining the record high seen in early 1975. Further gains in consumer incomes in 1977 will tend to keep demand for fresh and processed vegetables at high levels. Further slight rises in retail prices are expected.

The U.S. *potato* industry has already made some acreage cuts in 1977, and more are in the making if growers carry out present intentions. The important fall planting is indicated to be 4 percent less than a year earlier. These cuts are largely concentrated in the Pacific Northwest, where most of the expansion of recent years has taken place, and where current prices to growers are relatively the lowest. Average yields from this moderately

reduced acreage would still mean a fall crop of approximately 282-287 million cwt., certainly adequate for market needs. This would probably mean about 25-45 cents per cwt. higher U.S. average grower prices in the 4th quarter of 1977 over the same period a year earlier.

The potato supply is moderately larger than in either of the two previous years, because April 1 storage stocks were large enough to overcome the full effect of a reduced spring crop. With a larger supply to move, the usual seasonal price rise may not be as pronounced this season.

Dry bean growers expect to plant 4 percent less acreage this year. Export demand has improved only moderately from the poor performance a year earlier. Grower prices thus far this market season have been generally disappointing for most major classes.

RECENT DEVELOPMENTS AND OUTLOOK

FRESH VEGETABLES

The prospective acreage of 14 spring fresh market vegetables is 2 percent larger than a year ago. With yields equal to the 1974-76 average, output this spring would be about the same as last year. Among the major crops, there are larger acreages of snap beans, broccoli, cabbage, cucumbers, and tomatoes. There are acreage decreases for carrots, sweet corn, and lettuce. Also, the spring onion crop in Texas will be 40 percent smaller than last year.

At 127,500 acres, spring melon acreage is 7 percent larger than last year.

With the spring quarter well underway, the U.S. vegetable industry is gradually returning to a more typical national supply pattern. Because the Florida freeze last January destroyed large quantities of several tender vegetables, practically all market supplies available during much of February and all of March were from Mexico. Although imports from Mexico have been running heavier than last year, total supplies of tomatoes, cucumbers, pep-

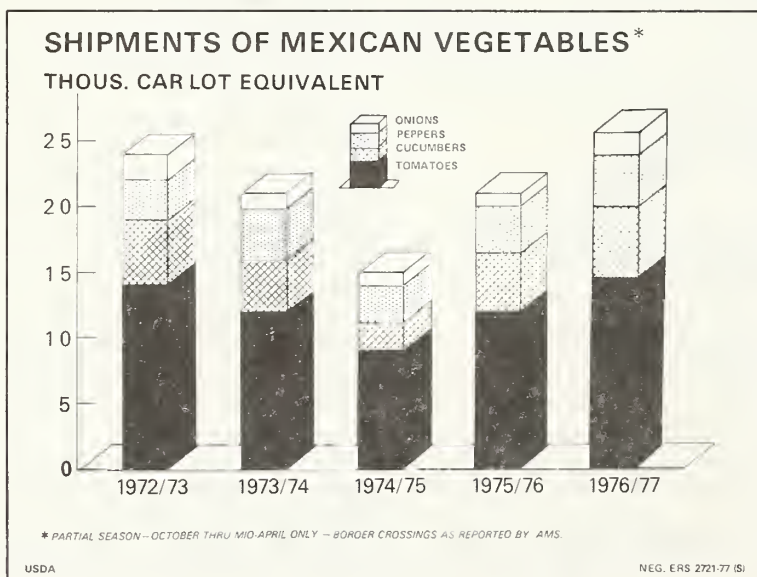


Table 1—Vegetables and melons for fresh market: Reported commercial acreage and projected production of principal crops, selected seasons, 1975, 1976, and indicated 1977

Seasonal group and crop	Acreage			Production		
	1976 major States	1977		1976 major States	1977	
		Indicated major States	Percent of 1976		Indicated major States	Percent of 1976
	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>Percent</i>	<i>1,000 cwt.</i>	<i>1,000 cwt.</i>	<i>Percent</i>
Winter	183.2	172.8	94	34,149	32,460	95
Spring: ²						
Snap Beans	22.2	23.4	105	829	842	102
Broccoli ³	14.8	18.7	126	1,332	1,646	124
Cabbage ³	17.4	17.4	100	3,574	3,525	99
Carrots ³	17.3	15.0	87	3,926	3,690	94
Cauliflower ³	5.2	5.5	106	468	495	106
Celery ³	9.3	9.3	100	4,389	4,408	100
Sweet corn	39.9	39.7	99	4,285	4,327	100
Cucumbers	18.8	20.9	111	2,089	2,148	103
Eggplant9	.7	78	230	174	76
Escarole	2.0	2.2	110	286	310	108
Lettuce	56.1	54.9	98	14,354	13,835	96
Green peppers ³	10.7	9.9	93	1,194	1,129	95
Spinach	1.2	1.1	89	135	120	89
Tomatoes	33.2	36.0	108	5,444	5,688	104
Total 14 Vegetables ⁴	249.0	254.7	102	42,535	42,337	100
Honeydew Melons	3.5	5.1	145	291	551	189
Cantaloups	23.6	26.5	112	2,843	3,233	114
Watermelons	92.0	95.9	104	13,070	13,138	100
Total melons ⁴	119.1	127.5	107	16,204	16,922	104

¹ Based on average yield per acre. ² April, May and June. ³ Includes fresh market and processing. ⁴ May not add to total due to rounding.

Vegetables for Fresh Market, SRS, USDA.

pers, and eggplant have been limited, with prices establishing record highs during February and March.

During the month of May, there will be generous supplies of several of the more tender vegetables that were destroyed earlier. Some replanting of destroyed crops, in addition to the usual spring acreage of tomatoes, snap beans, and cucumbers, is providing the potential for large supplies of these crops this spring.

With sharply curtailed domestic vegetable supplies this past winter, the grower price index advanced to record high levels in successive months, moving from 235 in January to 267 and 270 in February and March (1967=100). This compared with 178 for the first quarter of 1976. In April, prices dropped sharply to 226 as supplies increased seasonally. A further drop is expected though it is not likely the index will drop as low as a year ago in the second quarter which averaged 158.

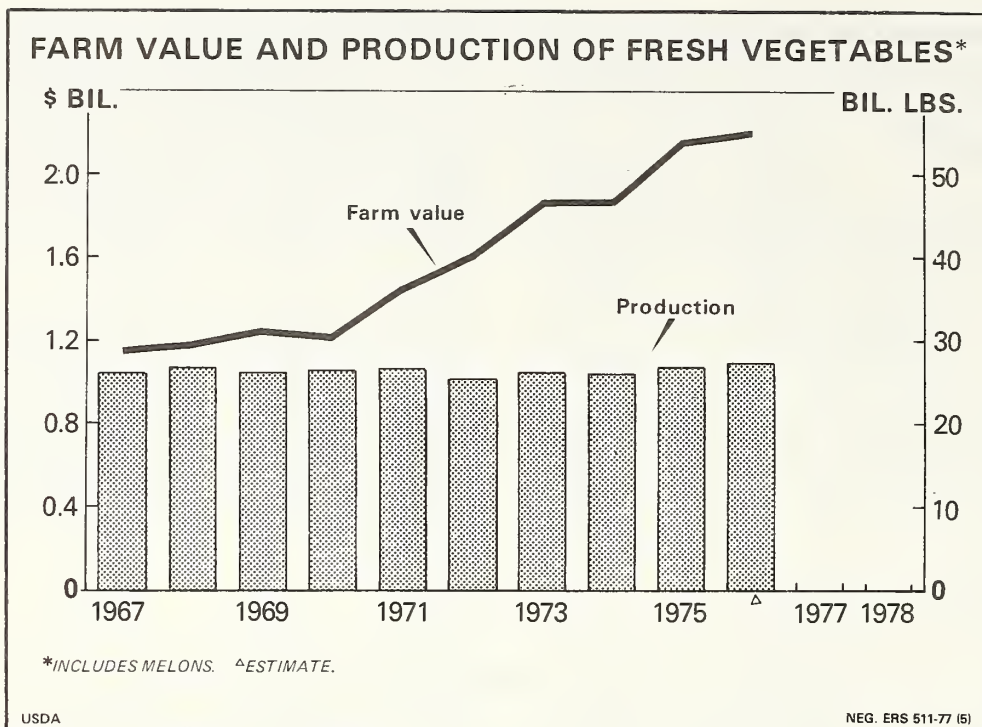
Retail prices may be expected to follow a roughly similar trend comparing the first and sec-

ond quarters. The February index of retail fresh vegetable prices stood at 240 (1967=100), and the March figure held close at 234. Last year the comparable figure for March was only 168.

The California drought situation is currently causing substantial concern about vegetable supply and price trends this spring and summer. It now appears that both farm and retail fresh vegetable prices will remain higher than a year earlier this spring and summer, but be substantially below March and April levels. Most vegetable crops to be harvested in California this summer are in Salinas and the Central and South Coast areas where water supplies are expected to be adequate. There are some exceptions, and these are treated in detail in the special article by E.V. Jesse in this issue.

Onions

The spring crop from Texas was small and late this year. Volume shipping did not develop until mid-April. At the same time heavy cullage in western Idaho-eastern Oregon depleted storage stocks



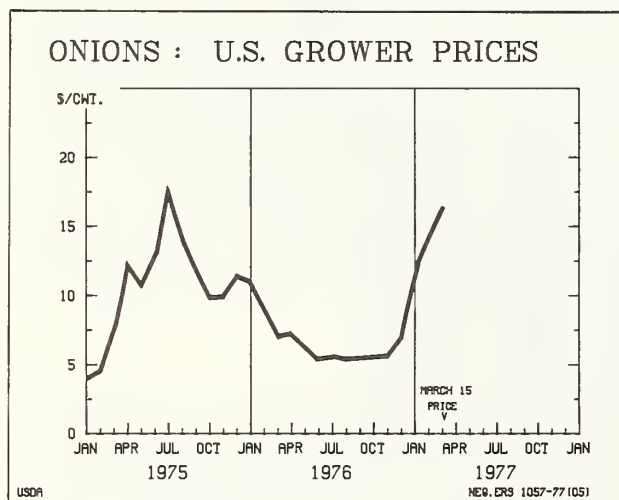
ahead of usual. Imports during the winter quarter were limited to moderate supplies from Mexico and some arrivals from New Zealand and Chile. As a result, grower prices rose sharply during the winter quarter.

The Texas spring crop, currently forecast at 2.9 million cwt., is 40 percent less than the 1976 crop of 4.8 million cwt. Supplies were light until mid-April when harvest became more active throughout the lower Rio Grande Valley. There are problems with seed stem growth in the early fields, but generally the quality of the crop has been good,

although sizes have been running smaller than usual. Similar conditions exist in other producing areas of the State. Additional imports to East Coast ports from Chile during the first half of April, plus some extra from New Zealand arriving at Los Angeles, helped turn prices downward during the middle of April.

With smaller supplies this spring, grower prices have been more than double the levels for much of 1976. Mid-April f.o.b. prices for whites—\$12.00-\$14.00-per 50 pound sack (80 percent or more U.S. No. 1) compared with \$3.75-\$3.95 a year earlier. Medium and large yellows at \$8.00-\$9.25—compared with \$2.98-\$3.68 a year earlier. High onion prices may be expected to last until late summer when the major storage States begin to harvest in volume. In the two non-storage States—primarily New Mexico, and Texas—the 10,450 acres intended to be planted is 17 percent smaller than a year earlier. These areas tend to harvest during the early part of the summer. In the storage States, which account for the major portion of the summer crop, acreage of 48,530 will be up 1 percent this season.

In addition, there is a 43-percent increase in indicated California summer acreage. These data are not included with other States as the summer crop here is used primarily for dehydration. There is serious question at this time whether growers will be able to have enough water to bring in a crop as large as the proposed acreage would normally imply. A substantial portion of the acreage



of this particular crop is located in the Central Valley where water supplies appear to be the shortest.

Tomatoes

Total supplies of tomatoes have been running behind those of a year earlier. Heavier shipments of Mexican tomatoes did not offset the approximate 31-percent reduction of Florida shipments which occurred as a result of the January freeze. Imports from Mexico during this time period were about 21 percent higher than in the previous season.

Table 2—Major sources of U.S. winter tomato supplies¹

Season October thru mid-April	Florida	Mexico ²	Total Florida and Mexico	Mexico as percent of total
	Thous. carlots	Thous. carlots	Thous. carlots	Percent
1967/68	12.5	8.1	20.6	39
1968/69	9.4	10.5	19.9	53
1969/70	6.0	13.3	19.3	69
1970/71	7.7	11.4	19.1	60
1971/72	10.0	11.9	21.8	54
1972/73	9.1	14.4	23.5	61
1973/74	10.0	11.7	21.7	54
1974/75	11.9	9.3	21.2	44
1975/76	11.9	12.9	24.8	52
1976/77	8.2	15.6	23.8	66

¹ Fruit and Vegetable Division - AMS - USDA. ² Border crossings include shipments to Canada.

Grower prices have been above those of a year earlier, when domestic supplies have been available. Domestic unloads dropped off as a result of the Florida freeze and practically no supplies were available during March. Mexican imports rose sharply after the Florida freeze and have continued at a heavy pace up to the present.

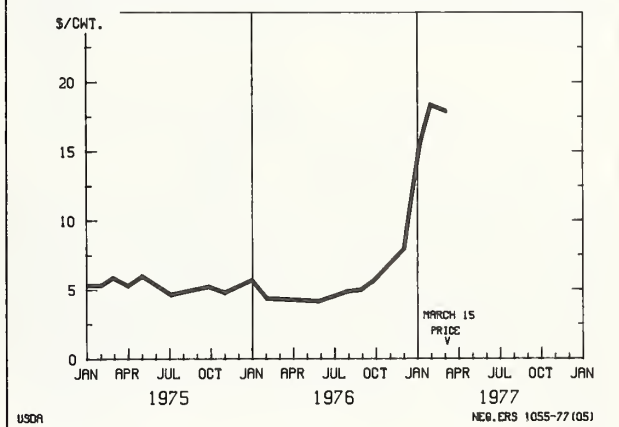
Spring tomato acreage in the United States, at 36,000 acres, is 8 percent more than last year. Based on average yields for the past three years, a 4 percent larger crop would result. Florida and South Carolina account for two-thirds of the spring plantings. The peak of Florida harvest is expected to be reached in late May when the Palmetto-Ruskin area reaches heavy production. Acreage for spring harvest in South Carolina is up by 6 percent to 6,800 acres. Alabama, Arkansas, California, and Texas also ship late in the spring period.

With the prospect of even larger spring supplies than a year earlier, prices for the spring quarter are likely to fall below the 18-cents-a-pound level of 1976. However, grower prices in the spring of 1976 ranged from 11 to 25 cents a pound. This contrasts sharply with prices for Mexican imports this past March and early April, quoted f.o.b. Nogales, Az., 35-40 cents a pound.

Cabbage

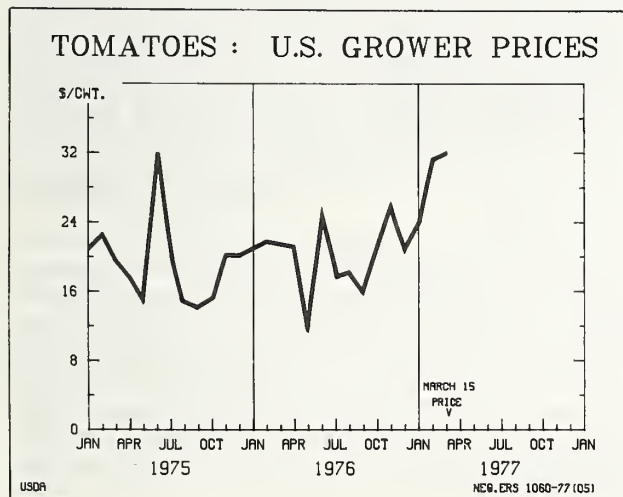
Unloads of cabbage this past winter quarter were about 7 percent less than a year earlier. Combined Texas and Florida shipments have been lighter. Prices have been very favorable to growers since January. They moved as high as \$12.00 per 1¾ bushel crate f.o.b. Lake Okeechobee, Florida, during the last week in January and the first two weeks of February. Since then they have been easing downward but still are more than double year-ago levels.

CABBAGE : U.S. GROWER PRICES



The 1977 spring acreage of cabbage at 17,450 acres is only slightly larger than a year earlier. Based on average yields, production at 3.5 million cwt. is slightly less than production during the spring quarter of 1976. Prospects for favorable grower prices through the spring and summer con-

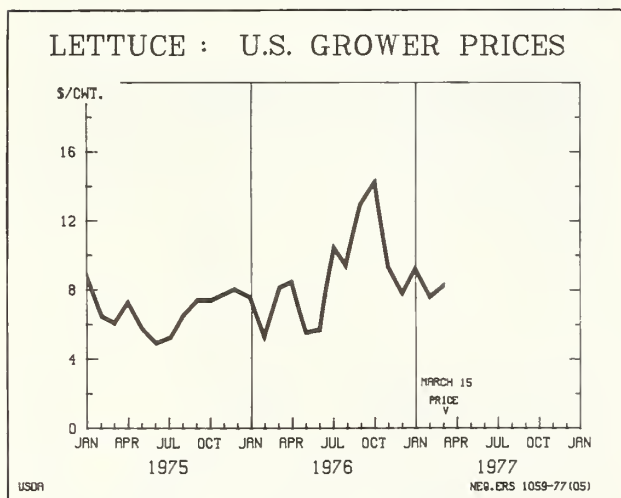
TOMATOES : U.S. GROWER PRICES



tinue to exist. Shipments from Florida will probably be peaking soon, but harvest from slightly larger acreages in Georgia and North Carolina than last year will probably take up the slack when Florida volume levels off. Texas, with a 20-percent reduction in acreage over a year ago, is expected to be actively shipping cabbage through the middle of June.

Lettuce

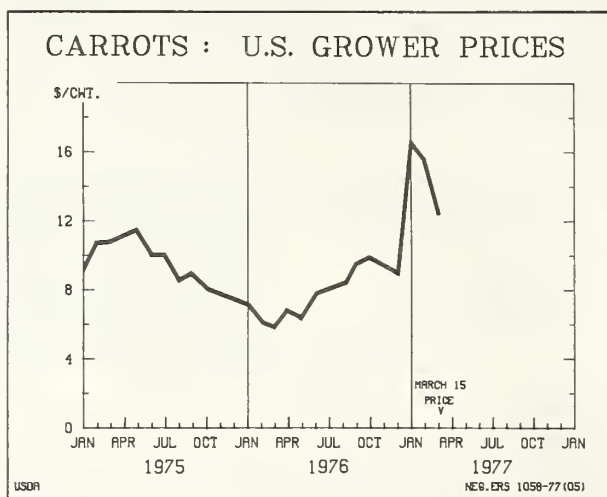
Winter quarter unloads of lettuce at leading markets were only about 2 percent above the previous year. Average prices for that period were higher than a year earlier, but with substantial swings from one month to the next. Weekly average prices per crate of 24 heads ranged from \$2.30 to \$5.10 at California and Arizona shipping points. By late April, prices had moved even lower, to \$1.89, as several California and Arizona shipping points were active simultaneously. In California, ideal conditions prevailed thus far in the spring lettuce crop. Harvesting is underway in the Oxnard and Santa Maria areas and just beginning in the lower San Joaquin and Salinas Valleys. Spring quarter acreage in 1977 is 2 percent less. Nearly 90 percent of the acreage lies in California and Arizona. With only a minor curtailment in acreage, average prices received by growers this spring will probably hold at last year's levels.



Carrots

A consistent pattern of lighter shipments than a year earlier marked the carrot business this past winter. Quantities unloaded at major U.S. terminal outlets were about 8 percent smaller than in the winter of 1975/76. Winter acreage was 25 percent less than in 1976, with Texas unable to plant its usual acreage due to rainy weather last fall. Cali-

fornia shipping point prices have been in the \$6.45 to \$10.00 range much of this past season, far above the \$3.00 to \$3.50 range a year earlier for a carton of 48 1-pound film bags. However, by late April, prices dropped to the \$4.50-\$5.00 level.

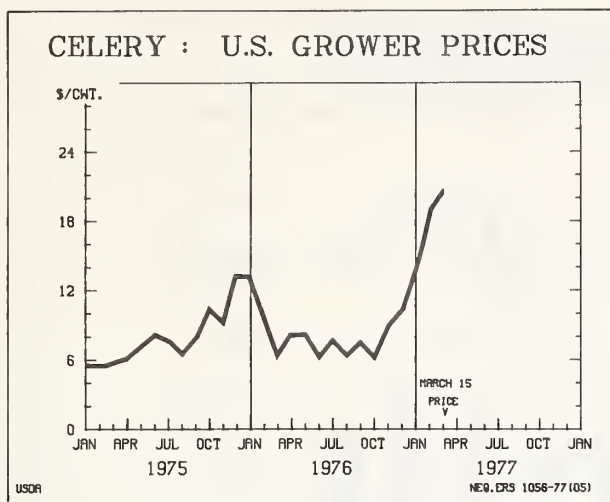


This spring, carrot acreage will be 15,000 acres, 13 percent less than a year earlier. Arizona and Texas are showing sharp decreases in acreage. However, California is showing an additional 500 acres over a year ago. Thus, prices of carrots are expected to be steady at higher than a year ago levels well into the summer months.

Celery

Unloads of celery in the principal U.S. markets during the winter quarter of 1977 were about 7 percent below those of a year earlier. F.o.b. prices in California and Florida shipping areas during the first three weeks of the winter quarter were below those of a year ago but since then have been about \$2.00 for 2-3 dozen bunches above those of last year. By late April, prices had evened out with a year ago. The Florida freeze of January 18-20 did not seriously curtail shipping activity, but the scarcity of other fresh vegetables prompted the rise in celery prices.

Prospective acreage for harvest during the spring quarter is estimated at 9,300 acres, the same as a year earlier. Harvesting is very active in the Everglades and central areas of Florida with quality ranging from fair to good. In California, the majority of celery shipments during the spring quarter will be from the South Coast-Oxnard area with some additional production from Orange County. Harvest in the Central Coast area will start in June.



Sweet Corn

Sweet corn acreage for harvest during the spring quarter of 1977 is about the same as last year at 39,700 acres. With average yields, production is expected to be slightly more than in 1976. Over 80 percent of the acreage is in Florida. Florida shipments of sweet corn virtually ceased after the January freeze. Volume picked up during the latter part of April. Moderate supplies are expected to come from the desert valleys and Kern County, California, for western outlets in May and June. By late April, grower and retail prices had moved close to levels of a year ago.

Asparagus

Harvest of the spring crop began earlier than usual this year, starting in Mid-April in the East and late April in the midwest. Unloads of California asparagus during the winter quarter to the end of March were 30 percent below those of a year earlier. Total acreage for harvest this spring is down 7 percent from 1976. Most of the cut in acreage occurred in California. But acreage was cut by another 1,000 in New Jersey and by 800 acres in Illinois. (There are further comments on this crop in the processed vegetable sector.)

Cantaloups and Honeydews

Expected spring cantaloup acreage for harvest is up 12 percent to 26,500 acres. The important Texas acreage is only slightly larger than a year ago, and harvest there is expected to start in late May and run through June, but California spring acreage is up 30 percent to 10,700 acres. Growth and development of the Arizona crop has been ideal except for recent cooler temperatures and high winds in the Yuma area which damaged about 700 acres. Harvest is expected to begin in

May in the central areas and in June in the western areas. Spring harvest in California will begin in mid-May and peak in June. With a 14-percent greater production possible, grower and retail prices are expected to moderate from current levels, at least for a time. However, the usual cantaloup volume from the important summer crop in California is not expected this year. Many of the State's major producing districts are those with the lowest supplies of water.

As of the end of March, border crossings of Mexican cantaloups were only two-thirds of those a year earlier. On the other hand, imports of honeydews were nearly 50 percent greater than last year. Overall, imports of the two kinds of melons from Mexico were about three-fourths of those of a year earlier.

The 1977 spring quarter acreage of honeydew melons in Texas is estimated at 5,100, or 46 percent larger than last year. A mid-May harvest is expected with supplies available until July.

Watermelons

The U.S. spring crop, 95,900 acres, is 4 percent larger than last year. Most of the gain is in Florida, although there are gains in Texas and Arizona as well, with Georgia showing a decline. The Florida crop has been delayed on account of the January freeze. Earliest fields were replanted. First harvest began the last week in April in Southwest Florida. In western and northwestern Florida districts, harvest will begin in June. South Texas will also be shipping at that time as well.

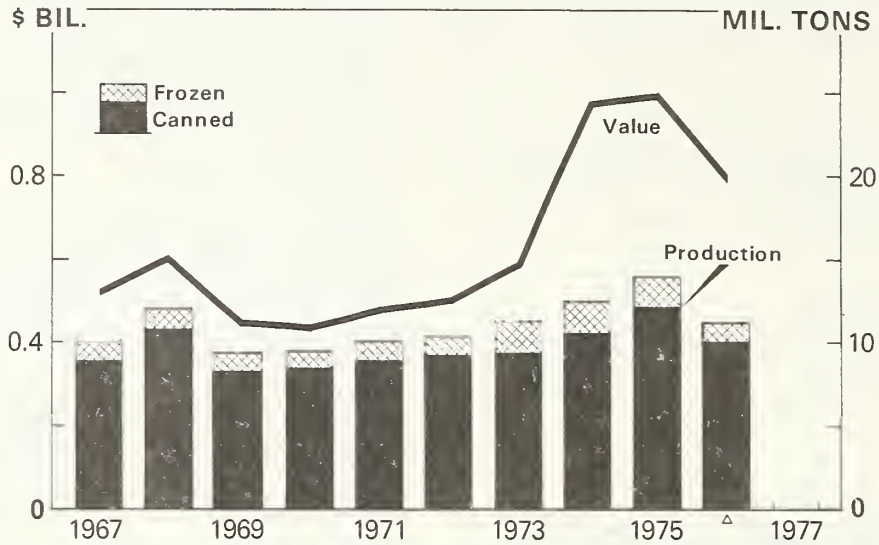
Up to the end of March, Mexican imports accounted for about half of the shipments of a year earlier.

PROCESSED VEGETABLES

After the reduced 1976 packs were made, processed vegetable supplies no longer were burdensome. Since September 1976, wholesale canned vegetable prices trended irregularly but moderately upward. There was some discounting of tomato products and canned peas late in the winter, but by April, the ERS index of canned vegetable prices reached 174, the same record as in early 1975 (1967=100).

Disappearance of canned vegetables in 1976/77 will probably be only slightly less than in the previous market season when larger supplies were available. Nevertheless, use of canned vegetables remains quite high, although no disappearance records for individual commodities are being set in this current season. This reflects what is appearing to be a static level of use for most canned vegeta-

FARM VALUE AND PRODUCTION OF PROCESSED VEGETABLES*



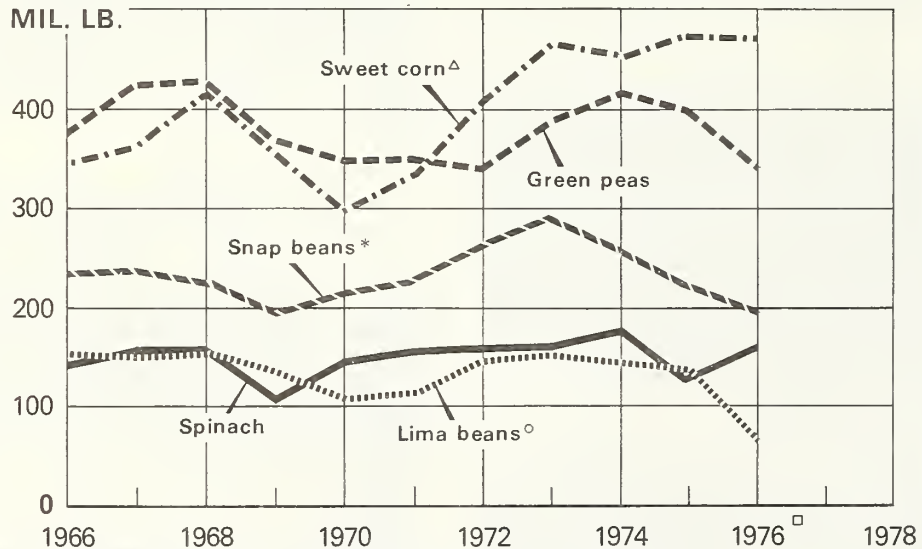
*ASPARAGUS, LIMA BEANS, SNAP BEANS, BEETS, CABBAGE FOR KRAUT, SWEET CORN, CUCUMBERS FOR PICKLES, GREEN PEAS, SPINACH, AND TOMATOES. BROCCOLI, CARROTS, AND CAULIFLOWER ADDED BEGINNING 1973.

△ PRELIMINARY.

USDA

NEG. ERS 1041-77 (5)

SELECTED FROZEN VEGETABLES-ANNUAL PACKS



△ CUT CORN AND CORN-ON-COB.

○ INCLUDES EMERALD LIMA BEANS, EXCEPT IN 1971.

* INCLUDES ITALIAN GREEN BEANS AND WAX BEANS.

□ 1975 PACKS FOR SNAP BEANS, LIMA BEANS,

AND SPINACH PARTIALLY ESTIMATED.

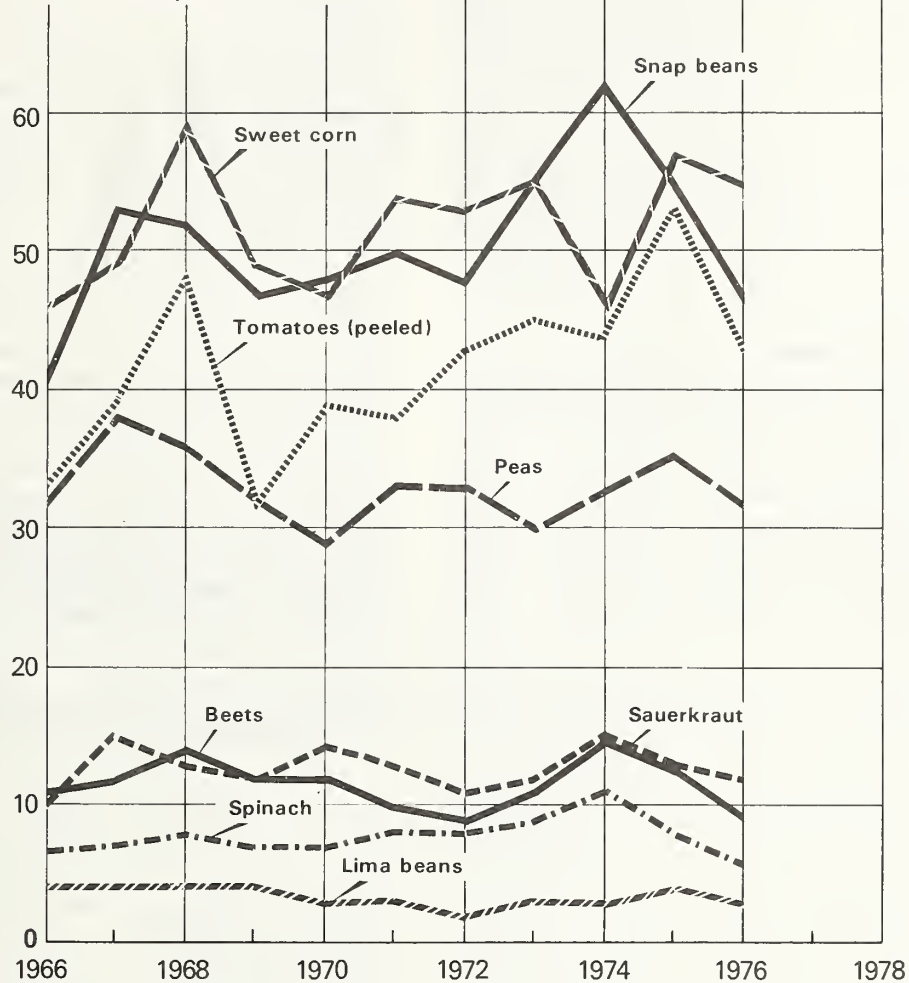
SOURCE: AMERICAN FROZEN FOOD INSTITUTE.

USDA

NEG. ERS 2443-77 (5)

SELECTED CANNED VEGETABLE PACKS

MIL. CASES, BASIS 24/303's



SOURCE: NATIONAL CANNERS ASSOCIATION.

USDA

NEG. ERS 2441-77 (5)

bles. Gains in the use of canned vegetables the past four or five years have largely been restricted to tomato concentrates and pickles. Once these items are removed from consideration, per capita use has been flat, even showing a slight downtrend since 1970 and 1971.

The use of frozen vegetables perked up in the 1976/77 marketing period, reaching nearly 2½ billion pounds. With packs down two consecutive seasons, this will leave the smallest carryover since the mid-1960's. Frozen vegetable demand no doubt has been spurred in part by recent high fresh vegetable prices. Even with this pickup in movement, probably no per capita use records have been set here either. It is possible though that total frozen vegetable movement will barely exceed the 1974/75 record.

Growers and processors are responding according to the pattern set by the current stocks situation. The 1977 prospective contracted planting of eight major processing vegetables is estimated at 1.6 million acres, only fractionally smaller than a year ago. There are plans to increase the contract acreage of major freezing vegetables by 8 percent and to cut back on canning vegetable acreage by 3 percent. There are large increases in acreages of both snap beans and lima beans for freezing and in beets and spinach for canning, but only a slight change in the total acreage devoted to the tomato crop which accounted for 56 percent of total processed vegetable tonnage in 1976. These acreages reflect plans made prior to planting time for many crops. Therefore, the area actually planted may dif-

fer from these figures, due to changes in weather, labor, supplies, producers' response to the report on planting intentions, and other economic conditions. Weather conditions are especially critical this year. Water supplies in important western producing areas are not up to normal levels, but judging by their intentions, growers seem willing to risk planting sufficient acreage to bring in normal crops.

Anticipating 1977/78 Supply and Price Prospects

Based on 3-year average yields, volume harvested from this acreage would provide about 2 percent more raw tonnage if present intentions are carried out. With the shortage of irrigation water in California possibly having some effect on tomato yields in that State, it is not likely that the total supply of processed vegetables for 1977/78 would be excessive, nor does it follow at this time that total supplies would necessarily turn out short.

A brief look shows that the total carryover of canned vegetables this summer will be moderate for the few items where statistics are available. However, carryover stocks of some of the individual items—canned peas, and concentrated tomato products—turn to the generous side. Among trade sources there is some concern that a larger than normal percentage of this summer's packing in California may go into concentrated tomato products, the reason being that more acreage planted in the northern districts may result in heavy amounts coming into canneries in too short a time to allow for a balanced mix of products.

Table 3—Vegetables for commercial processing: Prospective plantings

Crop	Planted acreage				1977 as percent- age of contract change in 1976
	1975 Total	1976		Prospective ¹ 1977	
		Total	Contract		
	<i>1,000 Acres</i>	<i>1,000 Acres</i>	<i>1,000 Acres</i>	<i>1,000 Acres</i>	<i>Percent</i>
Beans, green lima:					
Freezing	48.2	30.7	30.7	38.2	124
Canning	33.1	23.8	23.8	24.2	102
Beans, snap:					
Freezing	54.2	49.6	46.4	60.9	131
Canning	242.2	201.6	182.1	192.9	106
Beets for canning	19.4	15.0	13.4	17.0	127
Corn, sweet:					
Freezing	129.5	121.7	121.0	121.2	100
Canning	389.6	359.6	358.6	335.2	93
Cucumbers for pickles, spring and summer . . .	143.4	129.8	117.8	111.8	95
Peas, green:					
Freezing	159.5	125.9	125.9	130.2	103
Canning	307.3	269.6	269.2	250.1	93
Spinach, winter:					
Freezing	6.0	7.4	7.4	7.2	97
Canning	3.0	2.8	2.8	6.5	232
Tomatoes	393.9	346.8	339.4	333.7	98
Total 8 crops ²	1,929.2	1,684.3	1,638.5	1,629.2	99

¹ Under contract. ² May not add due to rounding.

For the two leading frozen vegetables, sweet corn carryover will be near last year's levels, while peas are expected to be somewhat lower. Stocks of carrots, broccoli, cauliflower, southern greens, spinach, green beans, and asparagus will be very much lower than in 1976.

Prospects for Leading Processed Vegetables

Snap Beans

Stocks of canned green and wax beans on March 1 were nearly 9 million cases below those of a year earlier. Of all the major canned vegetables, snap beans are currently the least generously supplied. Stocks are at lower levels this year because the 1976 crop was substantially smaller than a year earlier. Prices have been running above those of a year ago. For example, April quotations for Midwest fancy cut averaged about \$5.40 per case versus \$4.45 a year earlier. The 19.5 million cases on hand are the lowest since 1974. If the pattern and rate of disappearance is similar to a year earlier, no more than about 4.0 million cases will be carried over on July 1, which would make it the smallest carryover since July 1973. The contracted acreage for canning this season is up 6 percent.

As of April 1, stocks of frozen green beans at 59.0 million pounds were 47 percent below a year earlier. Since May 1976, prices of consumer and bulk packs have been advancing steadily. In December, the bulk price reached 35 cents per pound. In August that year, 29 cents was the generally quoted figure.

The prospective acreage increase of 31 percent for 1977 would adequately replenish existing light supplies.

Green Peas

Canners' stocks on March 1 were 15.6 million cases, 5 percent more than on the same date a year earlier. List prices are near last year's levels but there is substantial discounting. This season, canners and growers expect to cut acreage by 7 percent. Even with average disappearance the balance of the shipping season, the June 1 carryover would still exceed 9 million cases.

This large carryover, even with a 7-percent acreage decrease, would result in an ample supply for 1977/78. Some trade observers feel that a larger acreage cut would be appropriate.

Stocks of 119 million pounds of frozen peas on April 1 were about a fourth less than a year earlier. Prices had firmed up on both the consumer and bulk packs in the latter months of 1976. Movement into distribution channels has been very steady.

For the 1977 season, a 3-percent increase in acreage is tentatively planned.

Sweet Corn

Canners' stocks of 26.4 million cases on March 1 represent a record high in recent years. These stocks were 2 percent larger than on March 1, 1976.

March prices for Midwest fancy whole kernel 24/303's were \$4.95, the same as year earlier. By April 1, prices advanced to \$5.25, versus \$5.15 a year earlier. Plans for a 7-percent acreage cut in canning corn this season have probably been a price-strengthening factor.

April 1 stocks of frozen corn were 245 million pounds, less than a million pounds more than a year earlier. Prices have been showing remarkable strength since the latter months of 1976. Consequently, there is no planned change in freezing corn acreage.

Tomatoes

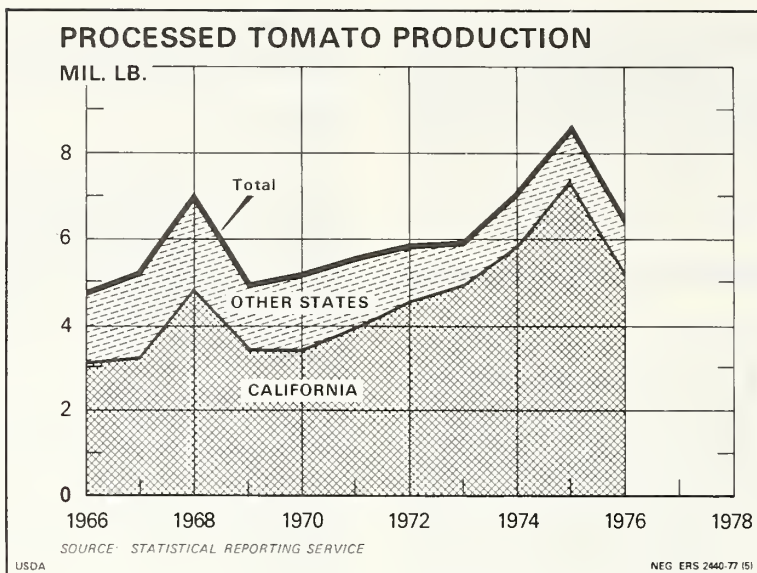
Combined stocks of all tomato products are down from last year. Tightened supplies have meant that prices have been firm for most tomato products. Some exceptions were mid-western and eastern catsup in 24/14-oz. cases, fancy 12/46-oz. juice, and some sizes of California paste and sauce.

U.S. canners and growers expect to contract 333,720 acres, 2 percent less than last year. California, by itself, probably will account for 265,000 acres, or 79 percent of the U.S. total. If 325,000 acres are harvested with average yields of 21.5 tons per acre, a crop of 7.0 million tons could result in 1977. In California, canners and growers have agreed upon \$55 per ton as base contract price, with extra incentive for late season deliveries only.

In California much of the crop is grown in areas with the most limited water supplies. To counteract this, there has been a shift in areas devoted to tomatoes, as there is additional planting north of Sacramento, with less acreage this year further south in the Central Valley. Here too, growers have decided to plant adequate acreage in tomatoes, although they are not certain whether enough water will be available to bring in a crop this year.

With smaller peeled tomato stocks, prices have been considerably above those of a year earlier. The early April quotes for California standard 24/303's were \$6.25 per case against \$5.25 a year earlier. The same size of Midwestern extra fancy, was quoted at \$6.25, about 13 cents per case higher than a year ago.

Prices for concentrated products, catsup, sauce, and puree have also been above those of a year earlier. These advanced prices show that the effects of earlier burdensome supplies have now largely disappeared.



Lima Beans

With April stocks of frozen limas at 51 million pounds, the lightest in recent years, sharp increases in 1977 freezing acreage have been planned. Baby lima acreage is expected to increase by one-fifth, while fordhook planting is expected to increase by one-third. California and Wisconsin have indicated increases in acreage, with less this year in Maryland and the same expected in Delaware.

With reduced supplies of frozen limas available, prices have edged upward the latter part of 1976.

Canned lima bean acreage in 1977 is expected to increase by only 2 percent. Even though the acreage was reduced in 1976 from 1975, it appears that the carryover in August will again be large.

Cucumbers for Pickles

The pickle industry plans a 5-percent reduction in contract acreage of spring and summer pickling cucumbers. These two seasonal groups usually account for all but 3 or 4 percent of the total U.S. acreage. Among the major States, the deepest cuts are in Michigan, Mississippi, California, North Carolina and Maryland. There are projected acreage increases for Ohio, South Carolina, and Wisconsin.

Sauerkraut

Kraut stocks have been running a little below last year's high levels. As of April 1, there were 5.7 million cases in canners' hands, 2 percent less than last year. This year packers intent to contract for 211,400 tons, 4 percent more than 1976. Most of

the kraut cabbage industry is centered in New York and Wisconsin. New York and Ohio expect to handle more tonnage this year, while Wisconsin and other States expect to handle less.

Beets

Beet stocks in canners hands on January 1 were 8.1 million cases—26 percent less than the burdensome supplies of a year earlier. Wholesale prices for Midwestern fancy sliced 24/303's at \$5.60 per case were about 80 cents per case more than a year earlier.

A 26-percent acreage increase is planned this year. Wisconsin is planning a 28-percent increase in acreage and New York 18 percent. With such a large increase in contracted acreage, open market purchases likely will be materially less this season.

Carrots

The SRS reported 341,100 tons were used for both canning and freezing in 1976 compared with 316,000 tons a year earlier. However, stocks of frozen carrots on April 1 at 65 million pounds were sharply less than previous levels. This reflects very good trade movement.

Broccoli

Freezing of broccoli in 1976 absorbed about 96 million pounds of raw product, about the same as a year earlier. Current stocks of 38 million pounds from 1976 and early 1977 packs on April 1 were at a record low. Retail demand has been especially strong. Wholesale prices were firmly up during the

last 2 months of 1976 over those during the early part of the year.

Spinach

The quantity of frozen spinach packed in 1976 was 160 million pounds, back to more normal levels. March 1 carryover stocks came to 24 million pounds, one-fourth less than a year earlier. California freezing activity pushed April stocks upward, but they remain well below a year earlier.

Carryover stocks of canned spinach were 2.8 million cases, one-third less than a year earlier. Winter acreage for canning this year was up more than double, which will replenish supplies. Substantial canning activity also comes with the spring crop, though acreage estimates for this season will not be known until late June. Canned spinach prices at wholesale with California fancy 24/303 at \$5.25 per case in April were up 65 cents per case over a year earlier.

Asparagus

Canned asparagus stocks on March 1 this year were way down to the lowest levels in history. Shipping activity was 7 percent less than a year earlier. Cannery will be carrying only 308 thousand cases of 24/303's equivalent into the 1976 season. The California spring acreage at 30,300 is 11 percent less than a year ago. Spring harvest supply is

available for both fresh market and processing. The total acreage of asparagus to be used this season is 75,400 acres, down 7 percent from a year earlier. This includes only 5 States: California, Washington, Michigan, New Jersey, and Illinois.

Stocks of frozen asparagus on March 1, carryover data were down to 4.7 million pounds, about the same as last year, and well below the previous seasons. With the prospect of reduced domestic raw product to draw from, the stage is being set for increased import activity during 1977.

POTATOES

1977 Acreage Cuts Planned

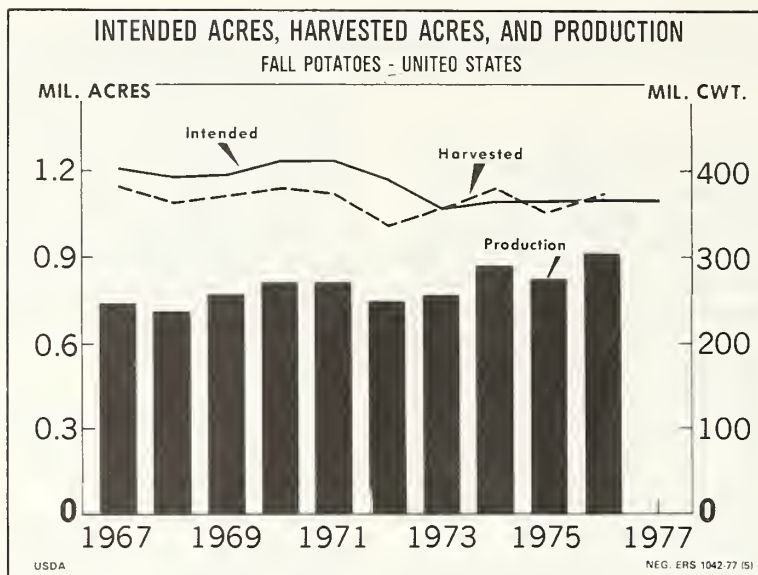
The U.S. potato industry has already made some acreage cuts for 1977, and more are in the making, assuming that growers follow present intentions as recently reported by the Statistical Reporting Service. In the aggregate, 1977 acreage at 1.35 million acres is 4 percent below the 1.40 million acres planted in 1976. Acreage and expected output of winter and spring crops is off, and growers intend cuts in summer and fall plantings as well. In 7 of the last 10 years, growers actually reduced plantings of the important fall crop below earlier stated intentions. The years 1974 and 1976 were notable exceptions where growers understated

Table 4—Potatoes, fall: Prospective plantings

Crop and area	Acreage planted			1977 as percentage of 1976
	1975	1976	Prospective 1977 ¹	
	1,000 acres	1,000 acres	1,000 acres	Percent
Fall:				
Maine	122.0	116.0	119.0	103
New York-Long Island	23.5	24.0	24.0	100
New York-Upstate	25.0	26.2	25.7	98
Pennsylvania	31.0	29.0	29.0	100
Other States ²	11.7	10.7	10.8	101
Eastern	213.2	205.9	208.5	101
Michigan	30.0	35.0	35.0	100
Wisconsin	52.0	56.0	58.0	104
Minnesota	70.0	69.0	67.0	97
North Dakota	116.0	124.0	126.0	102
Other States ³	26.4	26.7	25.8	97
Central	294.4	310.7	311.8	100
Idaho	325.0	370.0	340.0	92
Colorado	33.0	37.0	32.0	86
Washington	107.0	124.0	115.0	93
Oregon	56.4	65.9	58.5	89
California	19.0	18.5	17.0	92
Other States ⁴	33.1	35.2	36.7	104
Western	573.5	650.6	599.2	92
Total fall	1,081.1	1,167.2	1,119.5	96

¹ Intended acreage as of April 1. ² New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. ³ Ohio, Indiana, South Dakota, and Nebraska. ⁴ Montana, Wyoming, Utah, and Nevada.

Prospective Plantings, SRS, USDA, issued monthly.



intentions by 6 and 4 percent respectively. This year, the prospect of reduced irrigation water in certain limited areas of the Pacific Northwest may induce cuts on individual operations, but no major restricted planting plans for this crop have been noted thus far, with the possible exception of southwestern Idaho and Malheur County, Oregon.

Growers in the fall producing potato States expect to plant 4 percent less acreage than the amount actually planted a year earlier. A reduction this large would give a fall tonnage of 282 million cwt. if yields were 258 cwt. per acre. This yield figure is the latest 5-year weighted average. If additional allowance is made for steadily increasing yields in Washington and Oregon, 287 million cwt. would be a likely 1977 fall production figure.

Most of the acreage reduction is in the West where growers expect to cut by 8 percent. This would have a potential yield-reducing effect since this section contains the highest averages per acre in the nation. Elsewhere, changes add up to small gains over 1976 planted acreage. The East is up 1 percent and the Midwest is expected to be up less than a percentage point. Generally speaking, these changes from a year earlier probably reflect current supply and price patterns more than potential water supply considerations. If the U.S. fall crop actually is in the 282-287 million cwt. range, then the U.S. average 4th quarter price (SRS) could be expected to be 25-45 cents per cwt. higher than the same period a year earlier.

April Stocks Record Large

Although U.S. potato stocks on April 1 were record large for the date, other market factors have mitigated in some measure the seriousness of the

situation. First, the spring crop is estimated to be one of the smaller ones of recent years, western processing activity is remaining active longer than usual this year, and remaining eastern U.S. supplies are off 8 percent from a year earlier.

Slightly more than 70 percent of the remaining old crop potato supplies are in Idaho, Washington, and Oregon. This share is slightly larger than a year earlier, and the quantity on hand in this area is actually 19 percent larger than on April 1, 1976.

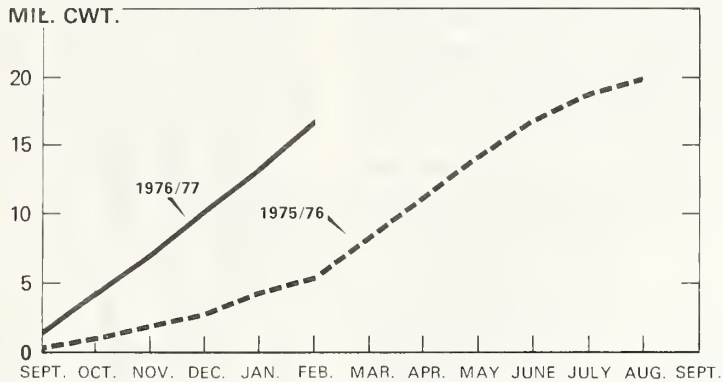
The total available supply of potatoes this spring compares with other recent years:

U.S. spring potato supplies			
	1975	1976	1977
	<i>Million cwt.</i>		
April 1 stocks	75.9	70.6	79.1
Spring production ..	20.0	24.8	21.4
Total	95.9	95.4	100.5

With a larger total supply to move this spring, the usual seasonal price rise may not be as pronounced this year, but some further gain in average prices is to be expected before the end of June. Storage stocks will be seasonally low by that time. The 14-percent smaller spring potato production, estimated at 21.4 million cwt., is one of the smaller crops of recent years. Most of the decline is centered in California where sharply reduced planting with moderately lower yields have combined to result in smaller total tonnage this year. There are production cuts in Florida, Texas, Alabama, and Arizona as well. Only in North Carolina, among

TOTAL POTATO EXPORTS*

1975 and 1976 Season - Cumulative



* FRESH AND PROCESSED COMBINED - FRESH WEIGHT BASIS

USDA

NEG. ERS 2704-77 (5)

the important spring States, is an increase likely. This tonnage reduction results more from the prospect of competing with fall States, and less the question of water availability.

Summer Acreage Likely Less

Growers of summer crop potatoes currently expect to raise 120,300 acres this coming season, or 3 percent less than last year, and nearly the same as 2 years earlier. Nonetheless, the 1977 figure would be the lowest of recent record, as there has been a long-term decline in spring and summer acreage.

Virginia accounts for the largest share of summer acreage, and a 3-percent cut is planned there

too. The rest of the East plans a mixed picture, with Delaware showing less, but more is expected in New Jersey and North Carolina. All other important States except Tennessee also plan less this season.

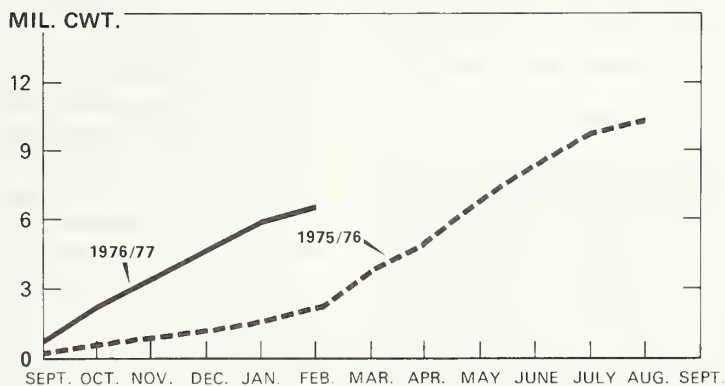
Five-year average yield estimates applied to these States individually would result in a crop 5 percent less than last year.

Strong Demand for Processed Products

Although stocks of frozen products were record large on April 1, at 878 million pounds about a tenth larger than a year earlier, wholesale prices for both Idaho and Maine consumer and institutional packs have remained stable since last fall.

FRESH POTATO EXPORTS

1975 and 1976 Seasons *



* CUMULATIVE

USDA

NEG. ERS 2703-77 (5)

In both States, 24 9-ounce packs continue to be priced \$4.63-\$4.70, with institutional Maine at 23.5 cents and Idaho 24.5 cents per pound. Retail prices also have changed little in the past year, varying only by half a cent from 27.4 cents per 9-ounce package equivalent. Domestic use is holding up well, and a high, but unmeasured, rate of export activity has continued throughout the current marketing season according to trade sources.

Calendar year pack of all frozen potato products set a new high of 3.3 billion pounds in 1976, a 10-percent gain from the previous year.

Table 5—Pack of frozen potato products*

Year	Million pounds	Year	Million pounds
1960	551	1968	1,736
1961	579	1969	2,048
1962	762	1970	2,404
1963	862	1971	2,565
1964	1,118	1972	2,594
1965	1,219	1973	2,691
1966	1,460	1974	2,985
1967	1,491	1975	3,001
		1976	3,335

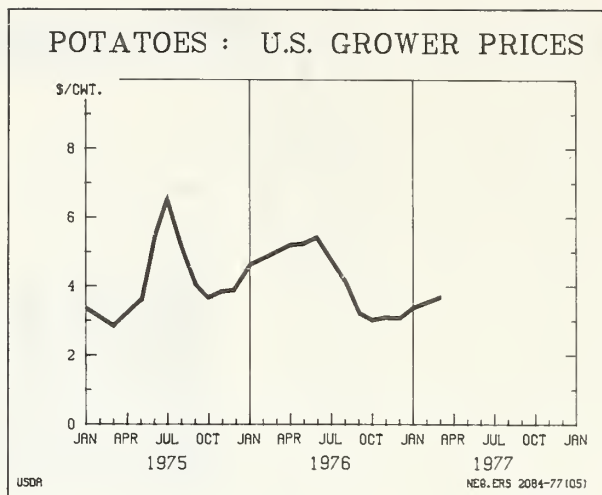
*American Frozen Food Institute.

Dehydrated potato demand has been buoyed considerably by exports. Between last September and February of this year, 9.3 million cwt. raw equivalent have moved to Canada and several Western European nations—primarily, Great Britain, France, West Germany, and the Netherlands. The comparable figure for 1975/76 would be 2.7 million cwt. Processors have had an unusually active season, and they expect to run longer into the late spring than has been the usual pattern of the past.

Prices for dehydrated potatoes at retail have also shown little change the past year with prices close to 57 cents/pound according to the BLS. Little is known publicly about domestic use of flakes and granules, but trade observers note that manufacturers of reconstituted chips have not been buying in as heavy volume the past several months.

Regional Price Situation and Outlook

The U.S. average potato price, which includes all types of sales, has moved up slowly throughout the storage season. The net upward change during the last quarter of 1976 was only 7 cents per cwt. with an average of \$3.03 per cwt. And in early April, prices strengthened despite the knowledge of record large holdings of old crop for this time of year. The April SRS average price moved to \$4.10 per cwt. This stronger market reflects continued heavy processing activity, the clean-up of supplies in the East, and the prospect of a smaller spring



crop volume. For the balance of the marketing season, average grower prices will likely hold firm to strong.

In Maine where the fall grown crop was only slightly larger than a year earlier, April 1 stocks were 11 percent smaller. The fresh market export deal to Europe gave growers an extra outlet this past season. Prices followed the pattern of boat loading—rising through January, then receding moderately in February as export shipping activity largely wound up late that month. Maine alone has provided 6,403 cars or roughly 3.5 million cwt., largely to European outlets. Despite the sharply increased shipping activity this new outlet temporarily created, average grower prices in Maine have held below a year earlier. This demonstrates how much a major supply source like Maine is influenced by market conditions prevailing nationwide. In mid-April, the Maine f.o.b. price turned up sharply, as relatively low storage supplies showed up in the last stocks report.

On the processing side, the growers' bargaining group in Maine has recently reached agreement with three processors over 1977 contract prices. In general, these are quality incentive contracts which give bonuses for color, size, specific gravity, as well as storage and handling. The agreed upon prices roughly could be described as 10-25 cents per cwt. more than a year earlier.

The Red River Valley, Wisconsin, and a few other midwestern States also participated in the fresh market export deal to Europe, though to a lesser extent than Maine. F.o.b. round red prices from Grand Forks held to low levels past mid-January, then rose sharply, only to yield some of that gain during February and March. Here too, prices remained well below levels of a year earlier when total supplies were substantially smaller.

In the Pacific Northwest, heavy supplies continue to dominate the market picture even though

prices did show some moderate improvement in early April. Cellar-run processing and table stock in Idaho was bringing \$2.60-\$3.25 per cwt. in early April, roughly 60 cents more than mid-winter levels. Part of this gain could be allocated to added storage costs for sales this time of year. F.o.b. prices for Idaho packed cartons also improved during April to \$9.50-\$10.00 per carton box of 80-100. This compares with \$12.50 a year earlier.

Processing contracts for the new season have been signed in Idaho at levels slightly less than last year. These, too, are quality incentive contracts covering a wide range of factors. In this State, growers are now being offered the choice of a 1- or 2-year contract.

Table 6—West European potato production, 1974, 1975 and 1976

Country	1974	1975	1976
	Million cwt.	Million cwt.	Million cwt.
EC			
West Germany	320.7	239.3	216.3
Netherlands	134.4	110.3	100.5
United Kingdom	137.3	99.6	97.0
France	167.9	159.3	92.0
Italy	62.8	63.9	67.0
Ireland	24.5	20.9	26.0
Belgium-Luxembourg ...	39.6	28.7	17.6
Denmark	19.8	14.7	13.4
Total	907.0	736.7	629.8
Other			
Spain	125.5	113.8	114.6
Austria	44.0	34.8	38.7
Sweden	27.7	18.5	23.4
Finland	11.6	15.0	20.9
Greece	17.5	19.1	20.6
Switzerland	23.9	21.3	19.8
Portugal	24.6	20.7	18.8
Norway	18.7	9.6	11.7
Total	293.5	252.8	268.5
Grand total	1,200.5	989.5	898.3

Foreign Agricultural Service.

SWEET POTATOES

Movement of the slightly larger 1976 crop of sweetpotatoes has been routine in recent weeks. April grower prices of \$10.58 per cwt. were 3 percent lower than a year earlier. Unloads in major markets have been up 8 percent over a year earlier. This suggests a slightly improved utilization in the fresh form since the 1976 crop was only 1½ percent larger. F.o.b. prices have been mixed relative to a year ago. Louisiana and North Carolina prices are higher but California offerings are moving for less.

Canners' Stocks Less This Year

Stocks of sweets in canners' hands this past January 1 were 4,200,000 cases, about a fifth less

than a year earlier. Supplies are adequate for trade needs and April wholesale prices were the same or only slightly higher than a year earlier. Syrup pack whole 24/303's at \$9.00 per case were the same as last year, while 24/2½'s were worth \$12.50 per case, 50 cents more than a year earlier. Institutional 6/10's averaged about \$11.50 to \$11.62 both years. The 1976 pack of sweets of 7.8 million cases (24/303's) was only 2 percent more than a year earlier.

Prospective Plantings

According to the the recent Prospective Plantings Report, one percent less acreage of sweetpotatoes is planned this season. Among the more important States, North Carolina is expected to raise 1,000 fewer acres, representing a 3-percent cut. Texas and Virginia also plan less. Louisiana is planning a comeback this season, with a 7-percent gain likely. Average yields would imply production volumes this fall slightly less than 1976. Even though sweetpotato prices are sensitive to price changes elsewhere in the vegetable sector, the chances are that grower prices can be expected to be equal or slightly higher this fall than they were late in 1976. But it would only require a small upward change in acres planted to seriously affect prices this fall.

MUSHROOMS

Apparently, demand for both fresh and canned mushrooms continues strong, as evidenced by only moderate price declines in the face of increased supplies, both foreign and domestic. Prices to growers for fresh market stocks to be repacked have held mostly 68-70 cents a pound since mid-January. A year ago prices for comparable quality were averaging 63 cents at Kennett Square, Pa. When this season began late last October, prices were at record levels, in the low and mid 70's.

As with fresh market prices, canners have been paying growers less than they did earlier this season but more than a year ago. Mid-April prices of No. 1 clean cut in bulk for processing were mostly 65-67 cents a pound compared with 60-64 cents a year earlier. These quotations also come from Kennett Square, Pa., with Temple, Pa., at the lower end of the range for the most part.

Mushroom growers' intentions to increase bedding space for 1976/77 by 10 percent were reported in the USDA annual survey last August. Trade observers note an active market season, as they feel that larger volumes of domestic crop are moving this year. Canned mushroom import activity for the current season has been running sharply above the corresponding period a year earlier. Tai-

**Canned Mushroom Imports
(July to March following year)**

Country	1975/76	1976/77
<i>Million pounds</i>		
Taiwan	24.1	30.9
South Korea	12.5	18.7
Others	2.3	2.9
Total imports	38.9	52.5

wan continues to be the major supplier but South Korea shows a greater percentage increase.

The U.S. International Trade Commission on January 10 recommended a five-year tariff-rate quota on imports of canned mushrooms. The USITC recommended this remedy after finding injury to the domestic industry substantially caused by imports. Then, an interagency review, chaired by the Office of the Special Representative for Trade Negotiations, considered the USITC report from overall national economic interest criteria under the Trade Act.

President Carter has decided, in the overall national economic interest of both consumers and producers, not to grant import relief to domestic producers of canned mushrooms. However, the President ordered the continued monitoring of canned mushroom imports and domestic market conditions. This is the President's first decision on the "escape clause" case under the Trade Act of 1974.

DRY EDIBLE BEANS

Dry bean growers plan to raise less again this year. A 4-percent drop is expected this time. Acreage is likely to remain the same or be less in

all important States except California. Growers in States which usually plant pintos are expected to make deeper cuts than most others. On the other hand, California growers' intentions to increase planting seem to be based on the currently favorable prices prevailing for blackeye peas, limas, and garbanzos. Since beans do not require large amounts of water, growers there seem willing to increase acreage of these crops.

Should 1977 yields turn out near average, the moderately smaller acreage planned in Michigan could still bring in a crop larger than the weather-damaged one growers dealt with a year ago. Overall, if 5-year average yields should be applied to planned acreage this year, the U.S. production would turn out to be close to 18 million cwt., up moderately from last season's 17.2 million.

Demand for beans has been running only poor to fair for most of the important classes. Domestic use has been routine, and the export trade thus far this season has only been moderately better than the poor performance a year earlier. The P.L. 480 sale to Egypt did give markets a slight lift during March. Great Northern sales to France, Greece, and other European countries have been the leading export class thus far this season. Usually the navy bean is the volume leader. Total exports for the season September 1, 1976 through February were 1.88 million cwt., 18 percent more than a year earlier. This figure still represents light volume.

Dealer prices for navy beans in late April were in the 20 dollar per cwt. range after having been as low as \$16 earlier in the year and \$20 a year earlier. Great Northerns are competitively priced at \$17.75 against \$19.50 a year earlier. These prices look favorable alongside the depressed pinto market which has been struggling with 2 seasons of heavy supplies. Most dealer quotes are \$13.50-\$14.25 per cwt. for cleaned and bagged stock, f.o.b.

Table 7—Beans, dry edible: Prospective plantings for 1977 season, with comparisons

Group of States	Acreage planted			
	1975	1976	Indicated 1977 ²	1977 as percentage of 1976
	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>Percent</i>
New York	49	43	42	98
Michigan	540	540	520	96
Nebraska, Montana, Idaho, Wyoming, and Washington	347	352	337	96
Minnesota and North Dakota	180	189	174	92
Kansas, Colorado, and Utah	233	216	197	91
California	154	179	188	105
Other States	12	8	6	75
United States	1,515	1,527	1,464	96

¹ Excludes beans grown for garden seed. ² Indications as of April 1.

dealers platform. These prices are the lowest since the 1972 harvest.

The liveliest market activity this season centers in California-grown classes. For example, blackeye peas now are selling in the mid \$30's per cwt., the second highest level of record for this time of year. Baby and large limas are also on the light side at the moment, thus explaining the recent interest in California planting activity.

DRY PEAS

With sharply restricted supplies available last fall, prices for dry peas and lentils have been moving upward thus far in the marketing season. This contrasts markedly with the dry bean market which seems unable to generate much enthusiasm. As for peas, the Northwest Pea Growers and Dealers Association estimates that domestic movement of a moderately smaller supply has been up 5 percent over the previous season to 528,000 cwt. Also, domestic movement of lentils is up proportionally more—somewhere between a fourth and a third.

Even with reduced total supply in 1976/77, export volume of 1.2 million cwt. between September 1 and March 1 was about 30 percent more than a year earlier. Lentil trade was also large with roughly half a million cwt. shipped the same period this season. Although this performance beats last year, it still remains far below other years of the 1970's times when domestic supplies were larger. Foreign pea buyers this year are the usual ones, the U.K., Venezuela, Japan, Colombia, with the Philippines and India new large volume

customers. The Algerians have purchased large quantities of lentils out of the current supply. Note that foreign trade in peas and lentils overshadows domestic use.

With stronger foreign and domestic demand, the SRS price for peas in April averaged \$12.00 per cwt., up from \$7.73 a year earlier. Dealers' pea prices in the \$11-\$14 range, while better than last year's, are selling far short of the 1973/74 season when prices exceeded \$30. Lentil prices currently at \$24.00 per cwt. are closer to the \$29.00 records. With these generally favorable prices, growers have decided tentatively to increase 1977 planting to 161,000 acres, 24 percent more than 1976. Both Idaho and Washington will be planting more, but soil moisture is low, though probably sufficient to germinate the seed. More rain will probably be required to bring in a crop of average yields. Prices in 1977/78 will be determined almost entirely by crop progress, since the carryover of old crops will be very low.

Peas, dry field: prospective plantings for
1977 season^{1 2}

State	Acreage planted		
	1976	1977 ³	1977 as percentage of 1976
	1,000 acres	1,000 acres	Percent
Idaho	50.0	65.0	130
Washington	80.0	96.0	120
U.S.	130.0	161.0	123.8

¹ In principal commercial producing States. ² Excludes both Wrinkled Seed Peas and Austrian Winter Peas. ³ Indications as of April 1.

Table 8—Vegetables, fresh: Representative prices (wholesale lots) at New York and Chicago for stock of generally good quality and condition (U.S. No. 1 when available) indicated periods, 1976 and 1977

Market and commodity	State of origin	Unit	Tuesday nearest mid-month					
			1976		1977			
			Mar. 16	Apr. 13	Jan. 18	Feb. 15	Mar. 15	Apr. 12
			Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
New York								
Beans, snap, green	Florida	Bu. hamper and crt.	8.75	7.75	13.75	---	---	7.50
Beets, bunched	Texas	1-2/5 bu. crt. 2 doz.	6.50	7.00	9.00	---	---	---
Broccoli, bunched	California	14's crt. & ctn.	5.75	7.00	8.00	10.75	8.00	6.75
Cabbage, Domestic								
Round type	Florida	1-3/4 bu. crt.	4.12	4.00	10.75	13.50	8.50	8.00
Carrots:								
Topped, washed	California	48-1 lb. film bag, ctn.	5.88	6.75	---	---	---	---
Topped, washed	Texas	48-1 lb. film bag, mesh master	---	---	---	---	---	---
Cauliflower	California	Ctn. Film wrpd., 12's	7.75	8.00	10.00	12.00	12.00	8.50
Celery:								
Pascal	California	Crt. 2-3 doz.	7.00	6.50	12.00	14.50	11.00	10.00
Pascal	Florida	Crt. 2-4 doz.	7.00	6.50	10.00	12.50	9.25	8.50
Corn, sweet (yellow)	Florida	4 1/2 doz. crt.	7.25	7.00	9.00	9.00	---	---
Cucumbers	Florida	Bu. bskt.	---	6.25	---	---	---	---
Lettuce, Iceburg	California	2 doz. ctn.	8.25	6.25	7.75	5.75	7.25	5.75
Onions:								
Yellow, Globe, medium .	New York	50-lb. sack	---	---	---	8.25	---	10.25
Yellow, Granex, large .	Texas	50-lb. sack	5.00	5.00	---	---	---	4.85
Peppers, green	Florida	Bu. bskt., large	13.50	10.00	12.25	14.50	---	13.50
Spinach, Savoy	Texas	Bu. bskt.	6.50	---	9.00	10.00	6.75	6.00
Chicago:								
Beans, snap, green	Florida	Bu. hamper and crt.	10.50	7.50	12.75	---	---	9.00
Beets, bunched	Texas	Crt., 24's	5.50	7.25	---	---	6.60	---
Broccoli	California	14's crate	6.00	6.25	7.75	9.25	7.25	7.00
Cabbage, Domestic								
Round type	Texas	1-3/4 bu. crt.	4.50	4.63	10.75	13.00	9.35	4.13
Carrots:								
Topped, washed	Texas	48-1 lb. film bag, mesh master	5.25	---	---	---	---	---
Cauliflower	California	Ctn. film wrpd. 12's	7.75	8.00	8.50	11.40	11.10	7.80
Celery:								
Pascal	California	crt. 2-3 doz.	7.75	7.00	10.50	13.75	10.25	9.15
Pascal	Florida	crt. 2-4 doz.	7.00	---	10.00	12.25	9.25	8.50
Corn, sweet (yellow)	Florida	4-1/2 doz. crt.	7.25	7.75	---	---	---	9.00
Lettuce, Iceberg type	Arizona	2 doz. head ctn.	7.50	6.50	6.50	---	6.75	5.25
Onions:								
Yellow, Granex, med. .	Texas	50 lb. sack	5.25	6.12	---	---	---	---
Yellow, Globe, medium .	Midwestern	50 lb. sack	3.85	---	6.25	7.50	9.50	11.50
Peppers, green	Florida	Bu. bskt., large	15.00	16.50	15.50	14.00	---	---

Weekly summary of terminal market prices, Market News Report, AMS, USDA.

Table 9—Vegetables, fresh: Average f.o.b. shipping point prices, per hundredweight, United States, indicated periods, 1976 and 1977

Commodity	1976		1977			
	February	March	January	February	March	April 1-15
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Asparagus	52.00	39.20	---	56.00	51.70	39.00
Beans, snap	28.70	20.30	26.90	---	---	14.70
Broccoli	20.60	17.60	---	---	---	---
Cabbage	4.31	4.22	15.30	18.40	15.50	11.20
Carrots	6.10	5.85	16.70	15.50	13.40	10.50
Cauliflower	23.20	21.90	---	---	---	---
Celery	9.92	6.33	13.60	18.90	9.58	9.93
Corn, sweet	12.00	10.90	11.00	16.10	---	11.60
Cucumbers	---	13.00	11.70	13.20	15.10	16.20
Lettuce	5.17	8.13	9.34	7.51	9.06	5.51
Onions	8.85	6.95	11.50	14.00	19.40	20.90
Peppers, green	22.90	34.80	28.50	33.30	40.70	41.50
Spinach	17.00	15.20	---	---	---	---
Tomatoes	21.80	21.40	23.80	31.40	34.50	26.50

Agricultural Prices, SRS, USDA, issued monthly.

Table 10—Vegetables, commercial for fresh market: Index numbers (unadjusted) of prices received by farmers, as of 15th of the month, United States by months, 1961 to date¹

(1967=100)

Period	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1961	74	74	76	95	83	90	81	65	65	65	76	74	76
1962	94	102	125	109	107	84	73	63	64	66	75	85	87
1963	102	95	82	83	78	88	85	65	62	70	91	94	83
1964	100	103	98	89	83	90	80	76	76	78	101	87	88
1965	78	83	97	107	127	103	84	77	78	87	89	87	91
1966	110	115	101	108	94	99	115	102	91	92	101	95	102
1967	100	94	96	110	104	128	109	84	80	88	101	104	100
1968	119	117	125	129	105	98	92	86	92	91	113	118	107
1969	104	109	113	110	118	97	97	94	90	111	151	130	110
1970	130	123	123	109	121	110	101	96	111	95	102	95	110
1971	111	116	149	135	126	127	119	101	99	121	172	138	126
1972	155	131	115	134	122	123	116	125	129	112	147	139	129
1973	155	154	170	200	190	190	179	131	125	122	127	129	156
1974	136	162	131	151	170	171	151	140	140	163	167	146	152
1975	169	169	166	177	169	204	178	157	159	159	174	189	173
1976	191	163	179	177	140	157	170	161	176	191	189	172	172
1977 ²	235	267	270	226									

¹ All prices reported on f.o.b. basis. ² Preliminary.

Table 11—Vegetables, frozen: Cold storage holdings and indicated disappearance, January 1 to April 1

Commodity	April 1 stocks			January 1-April 1 net change		
	1975	1976	1977 ¹	1975	1976	1977 ¹
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>
Asparagus	6	4	3	-6	-5	-5
Beans, lima:						
Fordhook	23	28	15	-6	-8	-8
Baby	53	65	36	-15	-14	-18
Total	76	92	51	-21	-22	-26
Beans, snap:						
Regular	93	80	40	-32	-67	-43
French style	40	31	19	-14	-17	-21
Total	133	111	59	-46	-84	-64
Broccoli:						
Spears	53	36	17	-7	-11	-11
Chopped and cuts	37	28	21	1	-5	-3
Total	90	64	38	-6	-16	-14
Brussels sprouts	32	36	20	-14	-13	-17
Carrots						
Diced	131	57	43	-25	-73	-32
Other	(³)	40	22	(³)	40	-13
Total	131	97	65	-25	-33	-45
Cauliflower	51	44	20	-18	-22	-27
Corn, sweet:						
Cut	141	157	150	-82	-94	-107
On-cob	54	87	94	-42	-27	-49
Total	195	244	245	-124	-121	-157
Mixed Vegetables	34	38	30	(⁴)	(⁴)	-3
Okra	20	18	8	-14	-11	-15
Onions:						
Rings	12	10	13	2	-2	1
Other frozen	6	2	11	-2	(⁴)	-3
Total	28	22	25	(⁴)	-1	-2
Peas, blackeyed	12	8	7	-2	-6	-5
Peas, green	137	156	119	-84	-95	-112
Peas and carrots	13	13	10	(⁴)	(⁴)	-2
Spinach	60	60	46	-9	5	-9
Southern greens	30	24	18	-12	-8	-10
Other vegetables	183	160	138	-31	-40	-36
Total vegetables ²	1,233	1,191	903	-412	-471	-550
Potatoes:						
French fried	687	676	770	123	106	121
Other frozen	127	111	107	-2	-1	6
Total frozen potatoes	814	788	878	121	105	128
Grand total ²	2,047	1,979	1,781	-291	-366	-422

¹ Preliminary. ² May not add to total due to rounding. ³ Reported separately beginning Feb. 1, 1976. ⁴ Less than .50.

Cold storage, SRS, USDA issued monthly.

Table 12—Fresh Vegetables: Retail price, marketing margin, and grower and packer return per unit, sold in New York City, indicated months, 1976 and 1977

Commodity, month, and retail unit	Retail price	Marketing margin		Grower and packer return (Fob shipping point prices ^{1, 2})	
		Absolute	Percentage of retail price	Absolute	Percentage of retail price
	<i>Cents</i>	<i>Cents</i>	<i>Percent</i>	<i>Cents</i>	<i>Percent</i>
Carrots (Pound)					
Jan. 1977	35.7	20.5	57	15.2	43
Dec. 1976	32.8	19.9	61	12.9	39
Jan. 1976	24.4	16.9	69	7.5	31
Celery (Pound)					
Jan. 1977	36.9	24.4	66	12.5	34
Dec. 1976	28.9	21.9	76	7.0	24
Jan. 1976	33.3	13.4	40	19.9	60
Cucumbers (Pound)					
Jan. 1977	42.3	25.2	60	17.1	40
Dec. 1976	34.9	18.3	52	16.6	48
Jan. 1976	36.2	16.0	44	20.2	56
Lettuce (Head)					
Jan. 1977	49.6	35.0	71	14.6	29
Dec. 1976	50.7	40.0	79	10.7	21
Jan. 1976	44.8	30.4	68	14.4	32
Onions, dry yellow (Pound)					
Jan. 1977	23.2	16.8	72	6.4	28
Dec. 1976	20.9	13.4	64	7.5	36
Jan. 1976	25.8	13.9	54	11.9	46
Potatoes, round white (Pound)					
Jan. 1977	14.4	9.2	64	5.2	36
Dec. 1976	14.5	9.8	68	4.7	32
Jan. 1976	15.4	9.2	60	6.2	40
Potatoes, Russet (Pound)					
Jan. 1977	19.7	14.5	74	5.2	24
Dec. 1976	19.3	15.1	79	4.2	21
Jan. 1976	21.8	14.1	65	7.7	35
Spinach (10-oz. Pkg.)					
Jan. 1977	66.7	50.2	75	16.5	25
Dec. 1976	65.0	49.8	77	15.2	23
Jan. 1976	59.7	46.2	77	13.5	23
Sweet Potatoes, (Pound)					
Jan. 1977	27.6	14.8	54	12.8	46
Dec. 1976	25.3	12.7	50	12.6	50
Jan. 1976	27.9	13.2	47	14.7	53

¹For quantity of product equivalent to retail unit sold to consumers: Because of waste and spoilage during marketing, equivalent quantity exceeds retail unit. ²Production areas: Carrots-California, Celery-California, Cucumbers-Florida,

Lettuce-California, Onions-New York, Potatoes, Round White-New York, Potatoes, Russet-Idaho, Spinach-Texas, Sweet Potatoes, North Carolina.

Table 13—Canned vegetables: Commercial packs 1975 and 1976 and canners' and wholesale distributors' stocks 1976 and 1977, United States

Commodity	Pack		Stocks					
	1975	1976	Canners			Wholesale distributors		
			Date	1976	1977	Date	1976	1977
	<i>1,000 cases</i> <i>24/303's</i>	<i>1,000 cases</i> <i>24/303's</i>		<i>1,000 cases</i> <i>24/303's</i>	<i>1,000 cases</i> <i>24/303's</i>		<i>1,000 cases</i> <i>24/303's</i>	<i>1,000 cases</i> <i>24/303's</i>
Major commodities								
Beans, snap	55,390	47,421	Mar. 1	28,669	19,534	Jan. 1	4,048	4,265
Beets	13,394	9,164	Jan. 1	10,841	8,057	Jan. 1	1,089	1,064
Corn, sweet	57,458	54,694	Mar. 1	25,959	26,447	Jan. 1	4,425	4,210
Peas, green	35,172	31,927	Mar. 1	14,877	15,575	Jan. 1	3,158	2,811
Sauerkraut	12,890	12,547	Mar. 1	6,770	6,485	Jan. 1	726	725
Total	174,304	155,753		87,116	76,098		13,446	13,075
Tomatoes and Products ²								
Tomatoes	53,465	42,614	Jan. 1	32,595	28,765	Jan. 1	4,751	5,104
Tomato juice	35,358	32,154	Jan. 1	22,155	24,236	Jan. 1	2,337	3,294
Total	88,823	74,768		54,750	53,001		7,088	8,398
Other commodities								
Asparagus	3,551	3,609	Mar. 1	1,147	308	Jan. 1	511	436
Beans, lima	3,729	2,812	Mar. 1	2,041	1,798	Jan. 1	440	373
Carrots	5,035	5,327	Jan. 1	4,513	3,991	Jan. 1	712	679
Okra ³	428	N.A.						
Pickles	¹ 75,516	70,972						
Pimentos	613	N.A.						
Pumpkin and squash	5,805	5,500	Jan. 1	1,132	2,723	Jan. 1	904	720
Potatoes	20,984	N.A.						
Sweetpotatoes	7,668	N.A.	Jan. 1	5,416	4,199			
Spinach	8,328	6,304	Mar. 1	4,236	2,818	Jan. 1	677	374
Other greens	3,022	N.A.						
Vegetables, mixed	N.A.	N.A.						
Field peas	1,995	N.A.						
Total comparable other items	101,964	94,524		18,485	15,837		3,244	2,582
Grand total comparable items	365,091	325,045		160,351	144,936		23,778	24,055

¹ Crop for processing converted to a canned basis by applying an overall conversion factor (pickles 112 and sauerkraut 54 cases equivalent to 1 ton fresh). ² Pack and stocks data not complete for catsup, paste, sauce and puree. ³ Okra, okra and tomatoes, and okra, corn and tomatoes. N.A. - not available.

Canners' stock and pack data from the National Canners, Association, unless otherwise noted. Wholesale distributors stock from United States Department of Commerce, Bureau of the Census.

Table 14—Potatoes, winter and spring: Acreage, yield per acre and production, 1975, 1976, and 1977

Seasonal group and State	Acreage			Yield per acre			Production		
	Harvested		For harvest 1977 ¹	1975	1976	1977 ¹	1975	1976	1977 ¹
	1975	1976							
	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>Cwt.</i>	<i>Cwt.</i>	<i>Cwt.</i>	<i>1,000 cwt.</i>	<i>1,000 cwt.</i>	<i>1,000 cwt.</i>
Winter, total	14.3	14.4	13.6	202	207	182	2,887	2,984	2,469
Spring:									
North Carolina	12.0	13.0	13.4	160	145	150	1,920	1,885	2,010
Florida-Hastings	16.2	19.3	19.5	195	210	190	3,159	4,053	3,705
Other	1.9	2.5	1.8	185	160	150	352	400	270
Alabama	10.6	11.5	11.0	130	140	145	1,378	1,610	1,595
Mississippi	1.9	2.0	1.9	90	95	85	171	190	162
Louisiana	2.6	2.6	2.4	70	75	80	182	195	192
Texas	5.5	7.1	5.3	150	155	150	825	1,101	795
Arizona	6.2	6.8	6.5	245	270	270	1,519	1,836	1,755
California	27.6	34.2	29.5	380	395	370	10,488	13,509	10,915
Total	84.5	99.0	91.3	237	250	234	19,994	24,779	21,399

¹ Indicated.

Crop Production, SRS, USDA.

Table 15—Potatoes, summer and fall: Prospective plantings, with comparisons, 1975, 1976, and 1977

Seasonal group	Planted acreage			
	1975	1976	Indica- ted 1977	1977 as percent- age of 1976
	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>Percent</i>
Winter ¹	14.4	14.6	13.6	93
Spring ²	85.4	100.9	91.9	91
Summer ³	120.8	123.7	120.3	97
Fall ³	1,081.1	1,167.2	1,119.5	96
U.S. total	1,301.7	1,406.4	1,345.3	96

¹ Includes acreage planted in preceding fall. ² Acreage planted and intended plantings as of April 1. ³ Intended acreage for 1977 as of April 1.

Prospective Plantings, SRS, USDA.

Table 16—Potatoes: Prices f.o.b. shipping points, at terminal markets, and to growers, per hundredweight, indicated periods, 1976 and 1977

Item	Week ended						
	1976			1977			
	Feb. 14	Mar. 13	Apr. 10	Jan. 15	Feb. 12	Mar. 19	Apr. 16
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
F. o. b. shipping points:							
New stock							
Florida, Dade County							
U.S. No. 1, Size A, Round Reds ¹	11.00	10.00	9.00	10.00	11.00	10.10	---
Old stock							
Colorado, San Luis Valley							
Red McClures ²	6.38	6.38	6.75	4.13	5.00	5.25	5.50
Idaho, Idaho Falls							
Russets ³	8.25	8.25	7.55	5.40	6.60	6.13	6.85
Maine, Aroostook County							
U.S. No. 1 Size A, Mostly Katahdin ^{1, 4}	7.00	6.64	6.58	5.18	5.00	4.90	4.20
New York, Upstate							
Round Whites ¹	7.50	8.04	8.40	6.32	---	6.88	---
Michigan							
Round Whites ¹	7.34	6.96	---	4.84	5.94	5.86	---
	Tuesday nearest mid-month						
	1976			1977			
	Feb. 17	Mar. 16	Apr. 13	Jan. 18	Feb. 15	Mar. 15	Apr. 12
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Terminal markets:							
New York:							
New stock							
Florida, Round Reds ^{1, 5}	14.30	15.00	13.50	---	14.50	13.00	16.50
Old stock							
Long Island, various Round Whites ^{1, 5}	8.80	8.30	---	7.00	7.50	7.20	---
Maine, Katahdin ^{1, 4, 5}	9.20	8.70	8.80	7.30	7.70	7.40	9.20
Idaho, Russets ^{1, 5}	12.25	12.50	12.70	10.50	11.30	11.00	11.50
Chicago:							
New stock							
Florida, Round Reds ^{1, 5, 6}	14.00	14.20	13.24	---	---	13.26	15.50
Old stock							
Idaho, Russets ^{5, 6}	10.50	11.00	10.87	10.87	9.50	9.75	9.87
Minnesota-North Dakota, Round Reds ^{5, 6}	8.50	8.50	8.50	8.00	7.25	7.25	7.25
	Month						
	1976			1977			
	Feb.	Mar.	Apr.	Jan.	Feb.	Mar.	Apr.
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
U.S. price received by growers	4.64	4.95	5.22	3.40	3.56	3.71	4.10
U.S. average parity price	5.63	5.65	5.66	5.61	5.70	5.75	5.81

¹ 50-pound price doubled. ² 2-inch up, washed. ³ 4-oz. minimum. ⁴ 2-inch minimum. ⁵ U.S. No. 1, Size A. ⁶ Street sales. F.o.b. prices are the simple averages of the mid-point of the range of daily prices. Terminal market prices are for Tuesday of each week as reported by Market News representatives of the Fruit and Vegetable Division of AMS. N.A.—Not available.

Table 17—Sweetpotatoes: F.o.b. prices at Louisiana and California points and terminal market prices at New York and Chicago for stocks of generally good quality and condition (U.S. No. 1, when available), indicated periods, 1976 and 1977

Location and variety	Unit	Week ended							
		1976			1977				
		Feb. 14	Mar. 13	Apr. 10	Jan. 15	Feb. 12	Mar. 19	Apr. 16	
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>		
F.o.b. shipping points									
S.W. Louisiana points									
Porto Rico type, U.S.									
No. 1, cured	50 pound crate	7.38	7.38	7.25	6.63	7.60	8.13	8.75	
California, Porto Rico type, centennial	40 pound carton	---	---	---	---	---	---	---	
		Tuesday nearest mid-month							
		1976			1977				
		Feb. 17	Mar. 16	Apr. 13	Jan. 18	Feb. 15	Mar. 15	Apr. 12	
		<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	
Terminal markets									
New York:									
New Jersey, orange									
Jersey type	Bushel carton	---	6.50	6.00	6.00	6.00	6.00	---	
North Carolina,									
Porto Rico type	carton	7.50	7.50	7.25	6.75	8.00	9.50	10.00	
Chicago:									
Louisiana,									
Porto Rico type, cured	50-pound carton	9.00	8.75	8.87	8.75	9.55	10.25	---	

F.o.b. prices are simple averages of the mid-point of the range of daily prices. Market prices are for Tuesday of each week as

reported by Market News representatives of the Fruit and Vegetable Division of AMS.

Table 18—Sweetpotatoes: Plantings, 1975, 1976
and indicated 1977

Area	Acreage			
	1975	1976	Indica- ted 1977 ¹	1977 as percent- age of 1976
	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>Percent</i>
Central Atlantic ² ..	11.1	11.2	9.8	88
Lower Atlantic ³ ..	42.3	45.5	44.3	97
Central ⁴	61.3	59.4	60.7	102
California	7.3	7.6	7.6	100
United States ...	122.0	123.7	122.4	99

¹ Indicated as of April 1. ² New Jersey, Maryland, and Virginia. ³ North Carolina, South Carolina, and Georgia. ⁴ Tennessee, Alabama, Mississippi, Arkansas, Louisiana, and Texas.

Prospective Plantings, SRS, USDA.

Table 19—Average price per hundredweight received by farmers for sweetpotatoes, dry edible beans,
and dry field peas, United States, indicated periods, 1976 and 1977

Commodity	1976		1977			
	February 15	March 15	January 15	February 15	March 15	April 15
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Sweetpotatoes	10.00	10.31	8.02	8.75	9.79	10.58
Beans, dry edible	18.70	17.80	14.10	16.00	14.50	16.60
Peas, dry field	7.40	7.97	11.10	12.20	12.30	12.00

Agricultural Prices, SRS, USDA, issued monthly.

CALIFORNIA DROUGHT UPDATE: IMPACT ON VEGETABLE PRODUCTION

by
E. V. Jesse

ABSTRACT: While California water shortages are the severest in years, it is likely that by adding more ground water supplies, the harvest of most vegetable crops in that State will not be greatly reduced this season. From the national supply standpoint, the largest potential drought impacts are to be felt in cantaloups, garlic, and processing tomatoes. Localized effects are to be felt in onions, pickling cucumbers, and processing snap beans—items for which this State is not a major supplier. Some individual growers, nonetheless, are having to make serious adjustments in their operations.

KEYWORDS: Drought, ground water, surface water, vegetable crop, hydrological areas.

California crop production in 1977 is in jeopardy due to two consecutive years of subnormal winter precipitation, with conditions the driest on record. Surface water allocations in some irrigation districts are as low as 10 percent of normal. While ground water supplies are presently near normal, new wells are being drilled at a record pace, and there is a good deal of uncertainty concerning the effect of overdraft and the extent to which ground water can substitute for reduced surface water. Also, ground water quality in many areas is poor, and anticipated electricity shortages resulting from reduced hydroelectric power generation could severely curtail pumping. Further, parts of the State—notably the “breadbasket” lower San Joaquin Valley—are heavily dependent on surface water sources for irrigation.

Because of differences in availability, the source of irrigation water (surface or ground) is critical in assessing the impact of the drought on crop production in California. Table 1 provides data relating to normal runoff, irrigated cropland, normal agricultural water use, and expected 1977 water supplies by source for the eleven major hydrological areas in the State. Figure 1 shows the location of these areas. The hydrological areas correspond to drainage areas defined by major rivers and mountain ranges. Table 1 emphasized the importance of the interior valley (Sacramento Basin, Delta-Central Sierra, San Joaquin Basin and Tulare Basin hydrological areas) which con-

tain about three-fourths of the irrigated land in the State. The Tulare Basin alone accounts for 34 percent of the State's irrigated land and uses about 27 percent of all irrigation water applied during normal years.

CALIFORNIA-HYDROLOGICAL AREAS



Figure 1

Table 1 shows that for the State as a whole, water supplies are expected to be about a quarter less than 1976. The area of the State suffering the most is the southern part of the interior valley (Delta-Central Sierra, San Joaquin Basin and Tulare Basin hydrological areas) where total water supplies are only about 60-64 percent of 1976 levels. In the remaining hydrological areas, water supplies range from 75 to 100 percent of 1976. Hence, the brunt of the California drought is being felt in the interior valley area extending from Sacramento to Bakersfield.

The distribution of vegetable production in California differs distinctly from overall cropping patterns (table 2), with the Tulare Basin the major producing area for processing tomatoes (the giant of California vegetables), snap beans, cantaloups, onions, and potatoes. Intensive cultivation of lettuce and other cool-weather vegetables in the Salinas Valley gives the Central Coastal area a slight edge in total vegetable acreage. The Colorado Desert area ranks third in vegetable acreage with large plantings of lettuce, melons, carrots, and onions in the Imperial and Coachella Valleys.

Combining the 1977 water availability data in table 1 with the acreage data in table 2 provides an indication of which vegetable crops will be the most seriously affected by the California drought. Little acreage reduction would be expected for those crops grown in areas with normal or near-normal surface water supplies (Sacramento Basin, Colorado Desert) or that rely primarily on ground water for irrigation (Coastal areas). In contrast, plantings and production will likely be significantly curtailed for those crops grown in areas of the State which are heavily dependent on restricted surface water (Delta-Central Sierra, Tulare Basin).

Drought severity indexes were calculated to provide a relative measure of how individual vegetable crops might be affected by regional differences in water supplies. Index values are shown in table 3. The California index was calculated by first multiplying estimated 1977 water supply as a percent of 1976 net water demand for each hydrological area. In turn, this product was multiplied by the proportion of total 1975 crop acreage in each area. (The State total acreage of each crop was reduced by acreage not specifically assigned to an area.) Then, these area values were summed to derive the State index.

The U.S. index is the State index multiplied by the proportion of U.S. production represented by California production, plus the percentage produced outside the State (1974-76 averages). For

both the State and U.S. indexes, high values denote little drought-related decreases in production, while low values suggest relatively severe potential cutbacks.

Caution must be exercised in interpreting these drought severity indexes. *In particular, it is important that they not be interpreted as absolute measures of likely decreases in vegetable production—they serve only as a rough guide to highlight critical crops.* It is highly unlikely that production cutbacks will be proportional to water reductions for several reasons. There will likely be production shifts from water-short areas to those with near-normal supplies. Individual producers will undoubtedly attempt to increase irrigation efficiency and reduce application rates, although the yield effect of reducing water application rates below conventional levels is not well-established. Individual farm water allocation decisions are complicated by several types of constraints facing producers. For example, a perennial crop producer who also grows annual vegetables must consider his long-term investment in orchards and vineyards. Production and marketing contracts, prevalent in vegetables, also limit flexibility in allocating water. For these reasons, there are some individual growers who may be severely handicapped by water restrictions this season.

Regardless of their deficiencies, the index values are useful in assessing relative impacts among vegetable crops. For the United States, the table suggests that the largest potential drought impacts will be on asparagus, cantaloups, garlic, and processing tomatoes. For all of these crops, the drought severity index is less than 90, and California produces more than half the U.S. crop. Localized effects are more severe in several other crops—snap beans for processing, cucumbers for pickles, onions, for example—for which the State is not a major U.S. supplier. The U.S. index for processing tomatoes appears low in light of published planting intentions which call for 265,000 acres, 1 percent less than 1976. However, there is some question concerning the availability of water for some of the crop already planted, and yields substantially below normal are possible. Other vegetables with relatively low U.S. severity index levels include processing limas, lettuce, onions, bell peppers, processing spinach, and fresh tomatoes. For the other vegetables shown, little drought-related impacts are anticipated, either because the crops are grown in those parts of the State where water supplies are not seriously impaired or because California is only a minor supplier of the U.S. market.

Table 1—California irrigation statistics and estimated 1977 water supplies by hydrological area

	Hydrological area											State Total
	North Coastal	S.F. Bay	Central Coastal	South Coastal	Sac. Basin	Delta- Central Sierra	San Joaquin Basin	Tulare Basin	North Lahanton	South Lahanton	Col. Desert	
Ave. Ann. Runoff, 1000 A.F..	27,150	2,990	2,450	1,230	22,340	1,600	6,370	3,320	1,840	1,330	180	70,800
% of State Total	38.3	4.2	3.5	1.7	31.5	2.3	9.0	4.7	2.6	1.9	.3	100.0
Irrigated Land, 1976, Acres ..	310,000	170,000	500,000	440,000	1,600,000	825,000	1,365,000	3,200,000	140,000	85,000	720,000	9,355,000
% of State Total	3.3	1.8	5.4	4.7	17.1	8.8	14.6	34.2	1.5	.9	7.7	100.0
Estimated irrigation water applied, 1976, 1,000 A.F.												
-Total	880	400	1,140	940	6,290	2,470	5,450	11,000	430	340	3,200	32,540
-Net Demand ¹	740	390	870	770	5,410	2,080	4,470	7,150	400	250	3,950	26,480
Net demand as a percent of State total	2.8	1.5	3.3	2.9	20.4	7.9	16.9	27.0	1.5	.9	14.9	100.0
Surface water as a percent of net demand	80.0	20.0	5.0	5.0	80.0	90.0	65.0	75.0	85.0	20.0	95.0	73.0
Projected water available, 1977, 1,000 A.F. ²												
Surface	110	50	25	70	2,725	450	840	830	100	45	3,500	8,745
Ground	450	300	800	700	2,000	800	2,000	3,500	200	200	200	11,150
Total	560	350	825	770	4,725	1,250	2,840	4,330	300	245	3,700	19,895
Estimated water as a percent of 1976 net demand	76	90	95	100	87	60	64	61	75	98	94	75

¹ Net demand is less than applied water by the amount of tailwater reuse within the hydrological area. Net demand in Colorado Desert is larger than applied water because distribution system losses are greater than tailwater reuse. ² Surface water projections are based on reported delivery plans by State and Federal water agencies. Ground water projections are subject to substantially more uncertainty. Figures shown are a synthesis of estimates from several sources, including historical pumping rates, reports of new wells, State Dep't. of Water Resources estimates, and County Farm Advisor Reports. The enormous variability in probable 1977 ground water exhibited by alternative source reports suggests that any a priori estimates, including those shown in this table should be viewed with suspicion.

Source: Economic Research Service, USDA estimates and *Water Conservation in California*, Dept. of Water Resources, The Resources Agency, State of California, Bull. No. 198, Sacramento, May, 1976.

Table 2—California vegetable crop acreage by hydrological area, 1975¹

Crop	UNSPEC. Counties	Hydrological area ²										State Totals	
		North Coastal	S.F. Bay	Central Coastal	South Coastal	Sac. Basin	Delta- Central Sierra	San Joaquin Basin	Tulare Basin	North Lahanton	South Lahanton		Col. Desert
Artichokes	---	---	750	9,450	---	---	---	---	---	---	---	---	10,200
Asparagus	2,340	---	1,580	4,150	1,420	1,060	22,790	---	---	---	---	4,860	38,200
Lima Beans (Proc.)	---	---	---	2,400	11,750	---	850	11,800	---	---	---	---	26,800
Snap Beans-Proc.	---	---	---	70	230	---	1,470	1,300	4,330	---	---	---	7,400
-Fresh	300	---	170	470	1,490	---	---	---	890	---	---	380	3,700
Broccoli	2,250	---	---	40,100	3,910	---	---	---	---	---	---	140	46,400
Brussels Sprouts	---	---	1,100	4,700	---	---	---	---	---	---	---	---	5,800
Cabbage	1,120	---	260	2,500	3,910	---	80	4,900	60	70	---	1,200	9,200
Cantaloupes	430	---	---	---	150	---	---	---	26,100	60	---	10,060	41,700
Carrots	870	---	---	8,130	300	---	---	---	10,300	---	---	13,500	33,100
Cauliflower	4,920	---	1,970	15,210	2,750	---	---	---	---	---	---	150	25,000
Celery	200	---	---	7,850	9,950	---	---	---	---	---	---	150	18,150
Sweet Corn	280	60	790	360	4,210	70	1,290	580	800	---	260	5,200	13,900
Cucumbers-Pickles	170	---	1,810	170	840	---	90	---	410	---	---	---	5,500
-Fresh	820	---	120	---	890	---	---	---	520	---	---	550	2,900
Garlic	340	---	480	4,860	---	---	---	---	3,710	---	---	1,410	10,800
Lettuce	3,620	---	2,860	81,820	3,550	---	---	---	11,500	---	---	53,150	156,500
Onions	430	630	510	2,050	710	1,150	1,400	430	14,380	---	250	9,660	31,600
Green Peas-Proc.	1,030	---	---	---	1,520	---	1,150	7,200	---	---	---	1,030	10,900
-Fresh	---	---	830	570	---	---	---	---	---	---	---	---	1,400
Bell Peppers	920	---	810	1,090	1,660	---	2,100	850	1,330	---	---	240	9,000
Potatoes	3,330	10,000	70	5,570	480	4,000	2,590	---	29,510	---	---	4,350	59,900
Sweet Potatoes	1,130	---	---	---	---	---	---	6,070	---	---	100	---	7,300
Spinach-Proc.	750	---	---	2,800	1,100	410	120	3,020	200	---	---	---	8,400
-Fresh	600	---	---	---	1,300	---	---	---	---	---	---	---	1,900
Strawberries	80	---	400	4,580	4,590	---	---	100	180	---	70	---	10,000
Tomatoes-Proc.	5,820	---	14,250	14,220	7,790	92,490	61,540	22,900	77,330	---	---	2,860	299,200
-Fresh	1,390	---	---	4,080	8,670	80	4,350	6,000	4,280	---	---	1,550	30,400
Watermelons	310	---	---	---	70	110	1,230	780	2,770	---	---	4,330	9,600
Total Vegetables	33,450	10,690	28,760	217,870	72,400	99,370	103,230	65,930	188,600	---	810	113,740	934,850
% of State	3.6	1.1	3.1	23.3	7.7	10.6	11.0	7.1	20.2	0.0	.1	12.2	

¹ Source: Compiled from county acreage data from *California Vegetable Crops*, California Crop and Livestock Reporting Service, Sacramento (1974-75 edition).² Hydrological areas are defined by Department of Water Resources, State of California (See figure 1).

Table 3—California vegetable production, 1974-76, and 1977 drought severity indexes¹

Vegetable crop	Calif. prod. 1974-1976 ave.		Drought severity index ²	
	Actual	% of U.S.	Calif.	U.S.
	<i>Tons</i>	<i>Percent</i>		
Artichokes	37,370	100	95	95
Asparagus	60,050	51	75	87
Lima Beans-Proc.	39,450	49	82	91
Snap Beans-Proc.	14,050	5	63	98
-Fresh	14,920	10	88	99
Broccoli	188,550	95	95	96
Brussels Sprouts	30,700	100	94	94
Cabbage	100,130	8	96	100
Cantaloupes	321,350	66	70	80
Carrots	524,870	51	84	92
Cauliflower	121,830	79	95	96
Celery	538,933	66	98	99
Sweet Corn	52,920	8	89	99
Cucumbers-Pickles	66,680	3	76	99
-Fresh	37,420	15	88	98
Garlic	58,300	100	83	83
Lettuce	1,907,500	72	92	94
Onions	491,130	30	76	93
Green Peas-Proc.	18,300	3	79	99
Bell Peppers	82,650	32	78	93
Spinach-Proc.	94,400	57	82	90
-Fresh	15,133	47	95	98
Strawberries	197,316	72	96	97
Tomatoes-Proc.	6,061,550	83	74	78
-Fresh	342,650	33	80	93
Watermelons	86,870	7	77	98
Total/Aves.				

¹ Does not include fresh market green peas, potatoes or sweet potatoes. ² See text for methods used to estimate drought severity indexes.

Source: Calif. and U.S. prod. - *Vegetables—Processing* and *Vegetables—Fresh Market*, Statistical Reporting Service, U.S. Dept. of Agr., Washington (1976 editions).

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